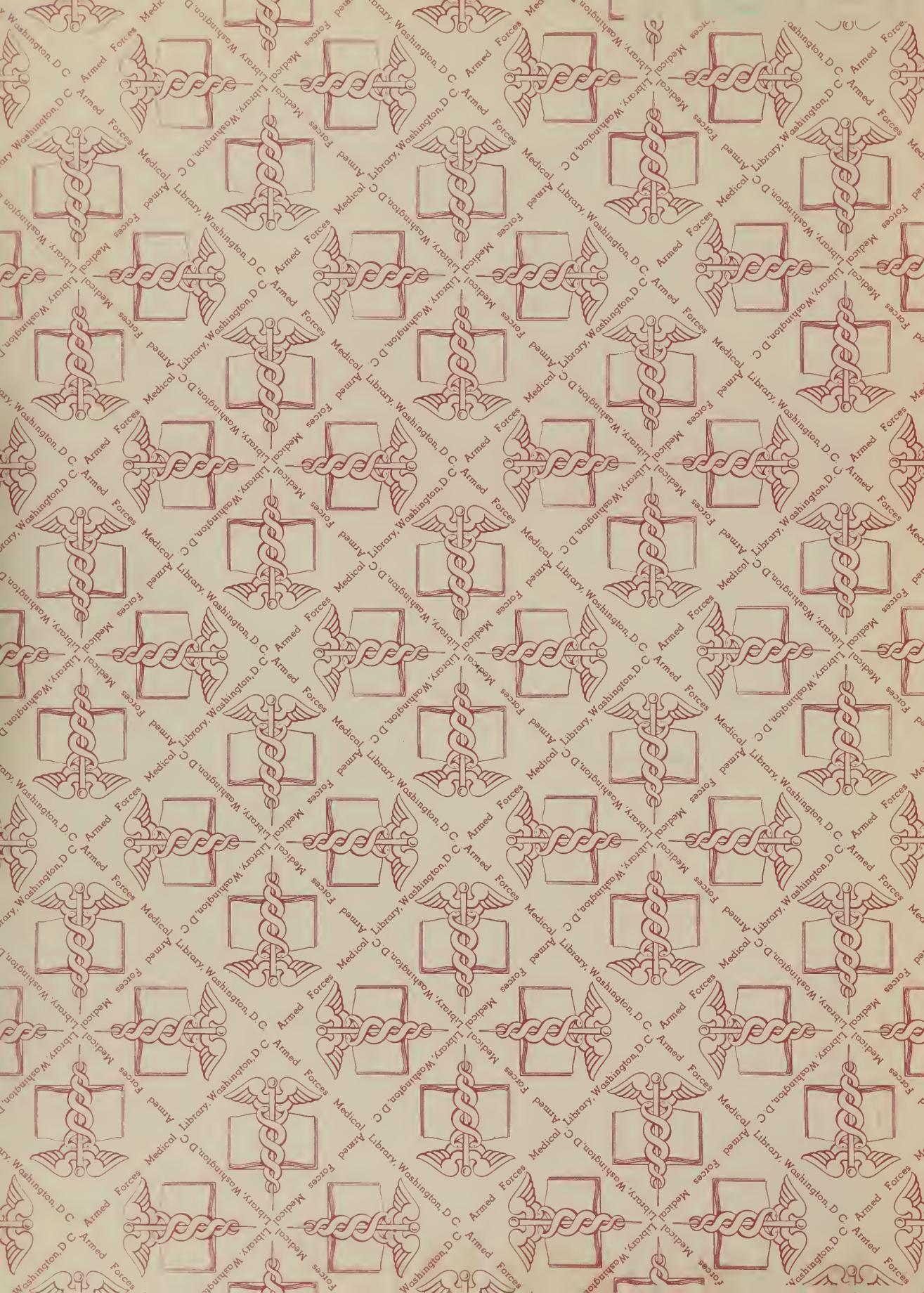
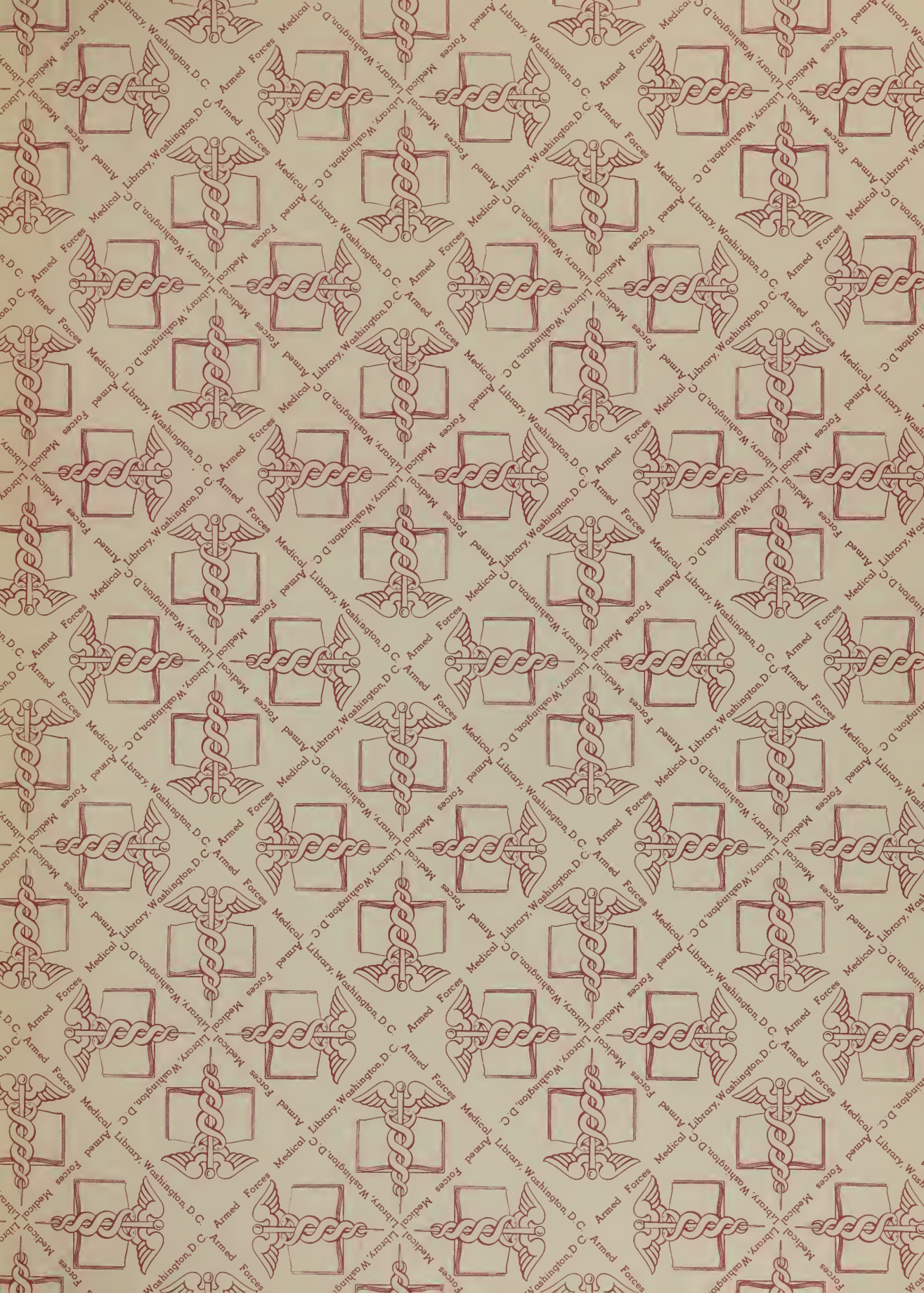
THE STRUCTURE, COMPOSITION AND GROWTH OF BONE 1930 - 1953

A BIBLIOGRAPHY

WASHINGTON, D.C.
MARCH 1955


Medical Library, Washington, D.C. Armed Forces


Armed Forces Medical Library, Washington, D.C.

THE STRUCTURE, COMPOSITION AND GROWTH OF BONE 1930-1953

A Bibliography

Compiled by
Marjory C. Spencer
Bibliographer
and
Katherine Uhler
Reference Librarian

Washington, D. C.
March 1955

*References marked with an asterisk were not accessible for examination when the list was compiled. This does not necessarily mean that they are not now available at the Armed Forces Medical Library. Conversely, not all of the material listed without an asterisk is in the Armed Forces Medical Library Collections.

For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. - Price $1.00

THE STRUCTURE, COMPOSITION AND GROWTH OF BONE

INTRODUCTION

We have attempted to present here a fairly comprehensive listing of the literature on bone, selected from the sources appended, and covering the period 1930 through 1953 with scattered references to the material of 1954. The exhaustive coverage of the literature to be found in W. von Möllendorff's Handbuch der mikroskopischen Anatomie des Menschen, [Berlin, Julius Springer, 1930, Band 2, Teil 2,] Die Gewebe; Stützgewebe, Knochengewebe, Skeletsystem, together with the listings on bone in the various series of the Index-Catalogue of the Library of The Surgeon General's Office, it was felt, made the year 1930 an appropriate starting point.

A full definition of the scope may be found in Dr. Johnson's preface immediately following this. A few of the bibliography's limitations should be mentioned: (1) It is concerned primarily with the physiology of normal bone, consequently studies on cartilage, marrow, the various pathological states of bone, and its regeneration and repair have been introduced only when they provide insight into the dynamics of bone. (2) Tissue culture studies are limited chiefly to in vivo studies. It was thought the existence of the comprehensive work, A Bibliography of the Research in Tissue Culture, 1884 to 1950, [M. R. Murray and G. Kopeck. New York, Academic Press, 1953. 2v.] made unnecessary the offering of any other than the most basic of in vitro studies. (3) As background material a few references, partly to bibliographies, are included on the closely related subject of teeth, as well as brief lists on the bridging subjects of glycoproteins, crystallography, and collagen, merely to round out the presentation.

The original plan to annotate all the articles listed had to be abandoned. Articles with titles which are incomplete or equivocal are, however, placed under subject headings which expose their true subject content. In addition, references are given to printed abstracts, whenever these have been found in the course of search; to conserve space usually not more than two have been cited for any one entry. In order to bring this bibliography to its users more promptly, not all of the bibliographic lists and citations appearing in the articles examined were pursued.

The arrangement of the listings is by subject. Since the greater part of the bibliography is concerned with calcification, growth and development, osteogenesis, and reconstruction and resorption, references to specific studies on these processes have been placed under the method used in the study, when a particular

one was employed, to avoid massing the citations under a few subject headings, thus leaving the broader terms for general studies on the subjects. An investigation on the effect of the growth hormone on endochondral ossification would appear under the heading "Hormonal influence", for example, while a critical review on ossification or a study involving many methods of study would be placed under "Osteogenesis."

Abbreviations for journal titles are those adopted by the Index-Catalogue of the Library of The Surgeon General's Office.

The Armed Forces Medical Library was fortunate in having as consultants Dr. Lent C. Johnson of the Armed Forces Institute of Pathology, Dr. William B. Savchuck of the National Institute of Dental Research and Captain C. R. Carr formerly of the National Naval Medical Center, and now at the Miller Orthopaedic Clinic, Charlotte, N. C., who developed the scope and gave freely of their time, knowledge, and energy in an effort to make the bibliography as useful as possible. During the early planning of the project, Dr. Franklin C. McLean of the Department of Physiology of the University of Chicago, Dr. Albert E. Sobel, Head of the Department of Biochemistry of the Jewish Hospital of Brooklyn and Dr. Edward C. Reifenstein, Jr., Director of Biological and Therapeutic Research of the Schering Corporation, Bloomfield, New Jersey, very kindly responded to our requests for suggestions on coverage with outlines of their concepts of the most pertinent aspects of the subject. Dr. McLean further cooperated by generously placing at our disposal his extensive personal file, collected over the past twenty years, thus making possible the checking of our listings against his for additions not found through the usual indexing and abstracting services. Miss Marjory C. Spencer, Bibliographer, Reference Division, planned and executed the compilation, assisted by Mrs. Katherine Uhler, Reference Librarian.

ESTELLE BRODMAN
Assistant Librarian
for Reference Services

Washington, D. C.
1 March 1955

SOURCES SEARCHED

Biblioteca Scientifica Sovietica (Istituto Bibliografico Italiano)

Biological Abstracts

Bulletin Analytique, (Centre National de la Recherche Scientifique, France)

Chemical Abstracts

Current List of Medical Literature

Donovan, T. R., ed. English Index to Soviet Medical Periodicals, 1945-1947. London, H. K. Lewis, 1950

Excerpta Medica
- Anatomy, Anthropology, Embryology and Histology - Sect. 1
- Physiology, Biochemistry and Pharmacology - Sect. 2
- Endocrinology - Sect. 3
- Surgery - Sect. 9

Index-Catalogue of the Library of The Surgeon General's Office. Fourth series and its unprinted card supplement to April 1950

Nuclear Science Abstracts

Nutrition Abstracts and Reviews

Sovetskoe Meditsinskoe Referativnoe Obozrenie
- Khirurgiia
- Normal'naia i patologicheskaia fiziologiia biokhimiia farmakologiia i toksikologiia
- Normal'naia i patologicheskaia morfologiia s embriologiei

Tsentral'nyi Referativnyi Meditsinskii zhurnal

PREFACE

The preparation of this bibliography has been guided by the realization that an investigator can generally trace and assay the literature of his own discipline, but that he can less readily deal with the seemingly perverse tendency of authors to conceal important contributions under deceptive titles in the literature of related but unfamiliar fields. Yet cognizance of such articles is essential in an era of increasing biological synthesis when the classic boundaries between disciplines blur in a vigorous interchange of techniques.

Osseous tissue, a bone as an organ, the skeleton as an organ system, have become the subject of particularly intense investigations in recent years. The finest details of the molecular structure of fiber proteins, the polyelectrolyte properties of sugar polymers, and the manner of growth and of orientation of crystals have become as important to the comprehension of bone and teeth as the role of osteoblasts and osteoclasts, the kinetics of cellular enzyme systems, and the available concentrations of calcium and phosphorus. The dynamics of the cyclic flux and reflux of bone formation and destruction, the basic physiology, remains a mystery toward the solution of which more and more disciplines are contributing.

This volume is a catalog of the investigations of the past 20 years that may provide insight into bone, both those studies that deal directly with bone and those that deal with subjects germane to it. One might, for example, begin a study of the function of bone by a consideration of its form. Today, bone morphology ranges from the gross to the molecular levels in a nearly continuous hierarchical series of individual but interlocking structural patterns. Particularly rapid advances have been made in the realm of submicroscopic anatomy by the use of such tools as polarized light, x-ray microscopy, electron microscopy and diffraction patterns. Interpretation of results so obtained requires consideration of the molecular structure of the chemical constituents of bone. This leads, in turn, to the literature of the colloid chemistry and of the macromolecular morphology of mucopolysaccharides and of collagens. Furthermore, the open steady-state kinetics of these organic components (in their biologic context) underscores the inadequacy of the concentration-dominated theories of calcification; so attention must also focus on the structure and dynamics of the isomorphous crystals that characterize the inorganic phase of bone, and on their surface activity, and on the principles of crystal dislocation and growth in colloid systems.

In bone all of these chemical and physical prosesses are carried out by cells, and therefore consideration is given to the

cells, to the relationships between the cells, and to the manner in which they generate, maintain, and finally destroy chondroid and osteoid matrices. A thorough grasp of normal physiology must embrace also the abnormal, which frequently unmasks basic relationships otherwise unsuspected. The controlled distortions possible, for example, in experimental hyperparathyroidism, rickets, scurvy, and fractures, and in their recovery patterns, illuminate the normal from one direction, while the behavior of isolated cell groups in tissue culture, transparent chambers, and transplants, coupled with the search for chondrogenic and osteogenic extracts, sheds light from another direction.

That a bone is more than a tissue, is in fact an organ, is clearly apparent in the reports of the varied behavior of particular portions of the same bone in response to a single metabolic, circulatory, or mechanical stress. How are circulatory and mechanical stresses translated into sharply localized cell activity which may even override the influence of humoral controls upon the cell? Apparently no generally accepted or adequate concepts are available as yet. However, a full account of the succession of normal transformations in the microstructure of human bone, from the earliest anlage to post-centenarian stages, is beginning to appear. Such structural details indicating both the kind of change and the rate of change (with respect to age, race, species, and individual bones of the skeleton) are fundamental to any satisfactory concept of the mechanism of the change, or of its modification by circulatory and mechanical influences. Furthermore, one finds that bone has not been divorced from its intimate association with the bone marrow on the inside, and the muscle, tendon, and ligament attachments on the outside, nor from its relation to other bones as part of an integrated organ system.

Obviously this bibliography covers a wide range of subjects. Complete citation of the literature in every pertinent field is not possible, but the central core bearing directly on bone seems reasonably complete and a systematic perusal of the references listed in the articles cited should leave few, if any, important gaps. Even though it covers a limited period, key references have been included which lead the reader to the earlier literature.

The increasing complexity and specialization of science have led to the rapid stockpiling of a massive world wide literature which escapes the apprehension of any single individual; yet the data, methods and ideas from a variety of disciplines are needed for the comprehension of any single field. The scientist seems condemned either to continuous reading with little time for work, or to half-blind work with little appreciation of its full meaning. Some form of bibliography complete with respect to its

central theme, which reaches widely but selectively into the literature of all related peripheral fields, is his only hope. It supplies the raw material for a theoretical construction, encouraging each man to make his own tentative synthesis and predictions, from which he may design better experiments. So conceived and so executed, the bibliography serves as a powerful catalyst for accelerating and even inducing investigations that may fill the larger gaps in our knowledge, and lead the sooner to a comprehension of the physiology of bone. The Armed Forces Medical Library has put forth a very special effort in producing such a volume, and research workers in many fields will find themselves increasingly grateful for this contribution.

LENT C. JOHNSON, M.D.

Armed Forces Institute of Pathology
1 December 1954

TABLE OF CONTENTS

CALCIFICATION - IN BONE AND CARTILAGE

see also ENZYME RELATIONSHIPS; ENZYME RELATIONSHIPS - PHOSPHATASE; HORMONAL INFLUENCE - PARATHYROID, and - SEX HORMONES, FEMALE; VITAMIN INFLUENCE - VITAMIN D

1
Bethke, R. M., Kick, C. H. and Wilder, W. THE EFFECT OF THE CALCIUM-PHOSPHORUS RELATIONSHIP ON GROWTH, CALCIFICATION AND BLOOD COMPOSITION OF THE RAT. J. Biol. Chem., 1932, 98: 389-403. 13 refs. Abstracted in: Chem. Abstr., 1933, 27: 756; Nutrit. Abstr., Aberdeen, 1932-33, 2: No. 3009.

2
Bevelander, G. and Johnson, P. L. A HISTOCHEMICAL STUDY OF THE CALCIFICATION OF THE MANDIBLE. J. Dent. Res., 1950, 29: 665. An abstract. The developing mandible of the pig is investigated with particular reference to time relations and intensity of: alkaline phosphatase; glycogen; mucopolysaccharides; and mineralization.

3
Bloom, W. and Bloom, M. A. CALCIFICATION AND OSSIFICATION. CALCIFICATION OF DEVELOPING BONES IN EMBRYONIC AND NEWBORN RATS. Anat. Rec., 1940, 78: 497-523. 5 pl. 4 refs. Abstracted in: Biol. Abstr., Balt., 1941, 15: No. 8598; Nutrit. Abstr., Aberdeen, 1940-41, 10: No. 3586.

4
Bloom, W., Bloom, M. A. and McLean, F. C. CALCIFICATION AND OSSIFICATION. MEDULLARY BONE CHANGES IN THE REPRODUCTIVE CYCLE OF FEMALE PIGEONS. Anat. Rec., 1941, 81: 443-475. 4 pl. 23 refs. Abstracted in: Biol. Abstr., Balt., 1942, 16: No. 9473. The series of changes which the bone marrow of female pigeons undergoes during the egg-laying cycle were studied with particular reference to: "(1) The relations between bone matrix and bone salt during the deposition and removal of bone, (2) the bone-forming potentialities of reticular cells, and (3) the origin and fate of the cells associated with the formation and destruction of bone."

5
Cartier, P. BIOCHIMIE DE L'OSSIFICATION. LE ROLE DE L'ACIDE ADENOSINE TRIPHOSPHORIQUE DANS LA MINÉRALISATION DU CARTILAGE OSSIFIABLE. J. physiol., Par., 1951, 43: 677-678. Abstracted in: Brit. Abstr., Sect. AIII, 1953, p. 910. "In vitro ATP is the only compound capable of the preliminary mineralisation of long bone cartilages from sheep embryos and cannot be replaced by any other energy-rich P compound. The initial compound formed is an amorphous pyrophosphate of Ca." - Brit. Abstr.

6
Cartier, P. LES CONSTITUANTS MINÉRAUX DES TISSUS CALCIFIÉS. III. LA FRACTION PHOSPHOCALCIQUE LIÉE AUX PROTÉINES OSSEUSES. Bull. Soc. chim. biol., Par., 1949, 3: 432-440. 21 refs. Abstracted in: Chem. Abstr., 1950, 44: 721h. Discussion of the nature of the protein-bound phosphocalcium fraction and of its significance in the biochemical processes of ossification. The study is based on earlier experiments of this series and contains a review of the literature.

7
Cartier, P. LES CONSTITUANTS MINÉRAUX DES TISSUS CALCIFIÉS. IV. LES PREMIERS STADES DE L'OSSIFICATION. Bull. Soc. chim. biol., Par., 1951, 33: 155-160. 10 refs. Embryo sheep epiphyses and diaphyses were studied [illegible] development. A transitory initial stage of ossification was observed when phosphorus fixation seemed to occur as a phosphorus-protein combination. This was quickly followed by the deposit of tricalcium phosphate on the protein matrix and the attainment of definitive calcium-phosphorus and phosphorus-nitrogen ratios. The appearance of the epiphyseal ossified nucleus coincided with tricalcium phosphate impregnation of the surrounding cartilage.

8
Clemmons, J. J., Freeman, D. J. and Angevine, D. M. HISTORADIOGRAPHY APPLIED TO STUDIES ON CALCIFYING CARTILAGE MATRIX. Fed. Proc., Balt., 1954, 13: 425. An abstract.

9
Cobb, J. [D.] CALCIFICATION OF RAT CARTILAGE AND BONE. Anat. Rec., 1949, 103: 531-532. An abstract.

10
Copp, D. H., Hamilton, J. G., Jones, D. C., Thomson, D. M. and Cramer, C. THE EFFECT OF AGE AND LOW PHOSPHORUS RICKETS ON CALCIFICATION AND THE DEPOSITION OF CERTAIN RADIOACTIVE METALS IN BONE. 31p. University of California Radiation Laboratory, Berkeley, Calif., 1951. (UCRL-1464) 14 refs. Abstracted in: Nuclear Sc. Abstr., 1951, 5: No. 6951.

11
Dallemagne, M. J. ACQUISITIONS RÉCENTES DANS LE DOMAINE DE LA BIOCHIMIE DE L'OS. Ann. méd. chir. centre, La Louvière, 1947, 3: 25-34. 30 refs. Also in: Acta physiother. rheumat. belg., 1947, 2: 77-87. From chemical research and x-ray diffraction studies it is concluded that bone mineral is composed of alpha tricalcium phosphate, calcium carbonate and magnesium. The biochemical processes of ossification are outlined in four stages. Phosphate fixation was observed to follow that of calcium and the calcium-phosphorus ratio, very low in developing bone, became stabilized at 2.10 or 2.20 in adult bone. The fact that during bone development this ratio is for a time 1.29 is incidental and does not indicate precipitation of secondary calcium phosphate. The literature and the author's own work are reviewed.

12
Dallemagne, M. J. LA THÉORIE DE LA CALCIFICATION PRIMAIRE. Bruxelles méd., 1947, 27: 2103-2110. 17 refs. The theory that the bone salts deposited during early bone formation consist of secondary calcium phosphate is discussed and repudiated. "The calcium-phosphorus ratio of 1.29 is only coincidence and does not indicate the presence of brushite in developing bone."

13
Dallemagne, M. J. THE THEORY OF PRIMARY CALCIFICATION IN BONE. Nature, Lond., 1948, 161: 115-117. 15 refs. Abstracted in: Biol. Abstr., Balt., 1949, 23: No. 800; Chem. Abstr., 1948, 42: 2997c.

14
Damboviceanu, A. CONTRIBUTION À L'ÉTUDE DU PHÉNOMÈNE DE LA CALCIFICATION (NOTE PRÉLIMINAIRE). Arch. roumain. path., Par., 1930, 3: 269-276. 1 ref. Abstracted in: Biol. Abstr., Balt., 1934, 8: No. 3071. "In both Astacus fluviatilis and the dog there appears in the blood serum, during calcification, a substance which is capable of precipitating the Ca in vitro." - Biol. Abstr.

15
Du Lac, G. TROUBLES DE LA CALCIFICATION DU SQUELETTE. Gaz. méd. France, 1948, 55: 381-382. 9 refs. Abstracted in: Excerpta med., Sect. 3, 1949, 3: No. 726.

CALCIFICATION - IN BONE AND CARTILAGE (Continued)

16
Eggers-Lura, H. LES RÉACTIONS BIOCHIMIQUES DU TISSU OSSEUX DANS L'OSSIFICATION ET LA RESORPTION. Minerva stomat., Tor., 1952, 1: 49-52. Also in: Odont. tskr., 1951, 59: 177-188; Deut. Zahn. & Heilk., 1952, 15: 366-374. An outline and discussion of the processes involved, considers 4 stages of bone formation: 1) formation of a protein matrix; 2) evolution of the matrix, which permits fixation of bone salts; 3) precipitation of calcium phosphate compounds and 4) integration of the salts into the bone substance.

17
Gérard, G. ESTUDIO HISTOQUÍMICO DE LA OSIFICACIÓN EN EL HOMBRE. I. MUCOPOLISACÁRIDOS Y CALCIFICACIÓN EN LA OSIFICACIÓN DIRECTA. Arch. Soc. biol. Montevideo, 1951, 18: 74-80. pl. English summary. Abstracted in: Chem. Abstr., 1952, 46: 11372f.

18
Gutman, A. B. CURRENT THEORIES OF BONE-SALT FORMATION WITH SPECIAL REFERENCE TO ENZYME MECHANISMS IN ENDOCHONDRAL CALCIFICATION. Bull. Hosp. Joint Dis., N. Y., 1951, 12: 74-86. 33 refs. Abstracted in: Chem. Abstr., 1952, 46: 6240g.

19
Gutman, A. B. and Yü, T. F. FURTHER STUDIES OF THE RELATION BETWEEN GLYCOGENOLYSIS AND CALCIFICATION IN CARTILAGE. Tr. Conf. Metab. Interrelat., 1949, 1.Conf., 11-26. Conference discussion: p. 19-26. 10 refs.

20
Hirschman, A., Sobel, A. E. and Fankuchen, I. CALCIFICATION. X. AN X-RAY DIFFRACTION STUDY OF CALCIFICATION IN VITRO IN RELATION TO COMPOSITION. J. Biol. Chem., 1953, 204: 13-18. pl. 28 refs. "X-ray diffraction patterns of the material which deposits in calcification in vitro show only the apatite lines, despite the wide variation in chemical composition. Preformed bone gives identical patterns, except for orientation in some areas. X-ray diffraction patterns fail to reveal the presence of $CaHPO_4$... This, however, does not exclude $CaHPO_4$ from consideration, since $CaHPO_4$ is converted to apatite when placed in solutions employed for calcification in vitro."

21
Hodge, H. C. SOME OBSERVATIONS ON THE DYNAMICS OF CALCIFICATION. Tr. Conf. Metab. Interrelat., 1950, 2.meet., 73-112. 33 refs. Abstracted in: Nuclear Sc. Abstr., 1951, 5: No. 1709. A review and discussion of the evidence for and against the importance of secondary calcium phosphate in calcification.

22
Howard, J. E. SOME CURRENT CONCEPTS ON THE MECHANISM OF CALCIFICATION. J. Bone Surg., 1951, 33A: 801-806. 51 refs. Abstracted in: Chem. Abstr., 1953, 47: 4460g; Biol. Abstr., Balt., 1951, 25: No. 36041.

23
Karshan, M. CALCIFICATION OF TEETH AND BONES ON RACHITIC AND NON-RACHITIC DIETS. J. Dent. Res., 1933, 13: 301-304. 3 refs. Abstracted in: Chem. Abstr., 1933, 27: 5379; Nutrit. Abstr., Aberdeen, 1933-34, 3: No. 3485.

24
Leblond, C. P. and Bélanger, L. F. MINERALIZATION OF BONES AND TEETH AS SHOWN WITH RADIOPHOSPHORUS AUTOGRAPHS. Anat. Rec., 1950, 106: 216-217. An abstract.

25
Leriche, R. QUELQUES ASPECTS NOUVEAUX DU PROBLÈME DE L'OSTÉOGENÈSE. Odontologie, Par., 1935, 73: 421-431. Discussion: p. 465-472.

26
Levine, M. D., Rubin, P. S., Follis, R. H., Jr. and Howard, J. E. HISTOCHEMICAL STUDIES ON CALCINOSIS UNIVERSALIS WITH RESPECT TO THE POSSIBLE RELATIONSHIP BETWEEN NORMAL AND PATHOLOGICAL CALCIFICATION. Tr. Conf. Metab. Interrelat., 1949, 1.Conf., 41-48. Conference discussion: p. 46-48. 7 refs.

27
Logan, M. A. RECENT ADVANCES IN THE CHEMISTRY OF CALCIFICATION. Physiol. Rev., 1940, 20: 522-560. Approx. 250 refs. Abstracted in: Biol. Abstr., Balt., 1941, 15: No. 14722; Chem. Abstr., 1941, 35: 1722.

28
MacDonald, R. P. STUDIES ON THE PHYSICAL CHEMISTRY OF BONE SALT FORMATION. J. Michigan M. Soc., 1953, 52: 537. An abstract.

29
McLean, F. C. and Bloom, W. CALCIFICATION AND OSSIFICATION. CALCIFICATION IN NORMAL GROWING BONE. Anat. Rec., 1940, 78: 333-359. 3 pl. 32 refs. Abstracted in: Biol. Abstr., Balt., 1941, 15: No. 8571.

30
McLean, F. C., Lipton, M. A., Bloom, W. and Barron, E. S. G. BIOLOGICAL FACTORS IN CALCIFICATION OF BONE. Tr. Conf. Metab. Aspects Convalesc., 1946, 14.meet., 9-19. 12 refs. Abstracted in: Chem. Abstr., 1950, 44: 3124i.

31
Marks, P. A. and Shorr, E. A METHOD FOR EVALUATING THE RELATION OF GLYCOGEN TO INORGANIC SALT DEPOSITION IN SURVIVING CARTILAGE SLICES IN VITRO. Science, 1950, 112: 752-754. Abstracted in: Excerpta med., Sect. 2, 1952, 5: No. 2777. Findings obtained by use of this technique are presented.

32
Marks, P. A. and Shorr, E. FACTORS WHICH REGULATE THE DEPOSITION OF CALCIUM AND STRONTIUM. Tr. Conf. Metab. Interrelat., 1950, 2.meet., 191-202. 12 refs. Results of experiments showed similarities in the deposition patterns of calcium and strontium and correlation of their deposition with the glycose-containing areas. Results with enzyme inhibitors indicated that phosphorylative glycolysis plays a major role in calcification and strontification, and that neither oxidation, per se, nor the citric acid cycle have an important function in deposition.

33
Marks, P. A., Hiatt, H. H. and Shorr, E. FACTORS INFLUENCING DEPOSITION OF CALCIUM AND STRONTIUM IN CARTILAGE IN VITRO. J. Biol. Chem., 1953, 204: 175-185. 22 refs. Abstracted in: Chem. Abstr., 1953, 47: 12553g; Biol. Abstr., Balt., 1954, 28: No. 13015.

34
Meyer zu Hörste, G. VERKALKUNGSVERSUCHE IN VITRO. DER EINFLUSS DER KOHLEHYDRATE AUF DIE VERKALKUNG IN VITRO. Mschr. Kinderh., 1932, 52: 439-443. Abstracted in: Nutrit. Abstr., Aberdeen, 1932-33, 2: No. 1305; Chem. Abstr., 1932, 26: 4872.

35
Miller, Z. B., Waldman, J. and McLean, F. C. RAPIDITY OF CALCIFICATION IN VITRO. Proc. Soc. Exp. Biol., N. Y., 1952, 79: 606-607. 4 refs. Abstracted in: Biol. Abstr., Balt.

CALCIFICATION - IN BONE AND CARTILAGE (Continued)

1952, 26: No. 25192; Chem. Abstr., 1952, 46: 6742[g].

36
Minder, W. and Gordonoff, T. MODELLVERSUCHE ÜBER DEN CALCIUMEINBAU IM KNOCHEN. Schweiz. med. Wschr., 1953, 83: 825-828. 14 refs. Abstracted in: Chem. Abstr., 1954, 48: 4666d.

37
Niven, J. S. F. and Robison, R. THE DEVELOPMENT OF THE CALCIFYING MECHANISM IN THE LONG BONES OF THE RABBIT. Biochem. J., Lond., 1934, 28: 2237-2242. pl. 7 refs. Abstracted in: Biol. Abstr., Balt., 1935, 9: No. 15937. Chem. Abstr., 1935, 29: 3012[5].

38
Nobel, S. INHIBITION OF CALCIFICATION IN VITRO BY SURFACE ACTIVE COMPOUNDS. Proc. Soc. Exp. Biol., N. Y., 1950, 75: 142-145. 16 refs. "Calcification in vitro of the hypertrophic epiphyseal cartilage was found to be inhibited by 4.8 x 10^{-4}M sodium desoxycholate, 1.9 x 10^{-3}M sodium cholate, 1.4 x 10^{-3}M Duponal C, and .08% Tween-20. By preliminary treatment of rachitic sections with higher concentrations of these surface active agents for a short time interval, it was possible to demonstrate inhibition only with the bile salts and Duponal C."

39
Oya, M. [INDEX OF ENDOCHONDRAL OSSIFICATION] Sei i Kai M. J., 1940, 59: 1195-1210. 8 refs. English abstract, p. 10.

40
Paff, G. H. and Sallman, B. PROBABLE MECHANISM OF ALIZARIN INHIBITION OF CALCIFICATION. Proc. Soc. Exp. Biol., N. Y., 1951, 77: 385-388. 12 refs. Abstracted in: Chem. Abstr., 1951, 45: 8647[h]; Biol. Abstr., Balt., 1951, 25: No. 36880. "An explanation of alizarin stoppage of calcification based upon the idea that locally there is a drop in the pH is advanced."

41
Paff, G. H., Angulo, A. W. and Eksterowicz, F. C. THE ZONE OF MINERALIZATION AND THE ACTION OF ALIZARIN IN PREVENTING ITS APPEARANCE IN BONES GROWING IN TISSUE CULTURE. Anat. Rec., 1951, 110: 129-137. pl. 4 refs. Abstracted in: Biol. Abstr., Balt., 1952, 26: No. 28349.

42
Proell, F. and Diener, A. MODELL-UND TIERVERSUCHE ZUM PROBLEM DER VERKALKUNG VON KNOCHEN. Zschr. Zellforsch., 1933, 18: 244-253. 15 refs. Studies on the calcification of bone were made in vitro and in vivo on young dogs and rats by vital staining and other methods.

43
Robison, R. THE SIGNIFICANCE OF PHOSPHORIC ESTERS IN METABOLISM. 104p. New York, New York University Press, 1932. 8 pl. Refs. following each lecture. Three Herter Foundation lectures. Lecture I. The occurrence of phosphoric esters in nature; II. Calcification of cartilage and bone; III. Calcification in vitro.

44
Robison, R. and Rosenheim, A. H. CALCIFICATION OF HYPERTROPHIC CARTILAGE IN VITRO. Biochem. J., Lond., 1934, 28: 684-698. pl. 17 refs. Abstracted in: Biol. Abstr., Balt., 1935, 9: No. 9173; Chem. Abstr., 1934, 28: 6164[3]. "The nature of the dual calcifying mechanism is discussed in the light of [illegible]ental results."

45
Roche, J. and Deltour, G. H. MÉCANISME DE LA CALCIFICATION OSSEUSE ET THÉORIE DES "FIXATEURS DU CALCIUM." Bull. Acad. méd., Par., 1943, 127: 488-492. 10 refs.

46
Rosenheim, A. H. THE EFFECT OF SERUM-PROTEINS ON CALCIFICATION IN VITRO. Biochem. J., Lond., 1934, 28: 699-707. 11 refs. Abstracted in: Biol. Abstr., Balt., 1935, 9: No. 9174; Chem. Abstr., 1934, 28: 6164[6].

47
Salpeter, M. PERIODIC PRECIPITATION OF CALCIUM SALTS IN VARIOUS ORGANIC SUBSTANCES. J. Dent. Res., 1953, 32: 362-366. Abstracted in: Biol. Abstr., 1953, 27: No. 32258.

48
Schmidt, W. J. ÜBER DIE VERKALKUNG DES KNORPELGEWEBES DER HAIE. Zschr. Zellforsch., 1952, 37: 377-388. 18 refs. Abstracted in: Excerpta med., Sect. 1, 1953, 7: No. 446.

49
Sobel, A. E. THE LOCAL FACTOR IN CALCIFICATION. Tr. Conf. Metab. Interrelat., 1950, 2.meet., 113-143. 31 refs. Report and discussion of studies which are interpreted as indicating the presence of something in the cellular matrix which combines with calcium and favors calcification.

50
Sobel, A. E. STUDIES ON THE "LOCAL FACTOR" OF CALCIFICATION. Tr. Conf. Metab. Interrelat., 1952, 4.Conf., 113-129. Conference discussion: p. 124-129. 24 refs.

51
Sobel, A. E. and Hanok, A. CALCIFICATION. VII. REVERSIBLE INACTIVATION OF CALCIFICATION IN VITRO AND RELATED STUDIES. J. Biol. Chem., 1952, 197: 669-685. 54 refs. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 1108; Chem. Abstr., 1953, 47: 192[a].

52
Sobel, A. E., Hirschman, A., Goldenberg, H., Schmerzler, E. and Fankuchen, I. COMPOSITION OF MINERAL DEPOSITED IN IN VITRO CALCIFICATION IN RELATION TO FLUID COMPOSITION. Fed. Proc., Balt., 1953, 12: 270. An abstract.

53
Sobel, A. E., Nobel, S. and Hanok, A. THE REVERSIBLE INACTIVATION OF CALCIFICATION IN VITRO. Proc. Soc. Exp. Biol., N. Y., 1949, 72: 68-72. 26 refs. Abstracted in: Biol. Abstr., Balt., 1950, 24: No. 4248.

54
Sontag, L. W. and Pyle, S. I. VARIATIONS IN THE CALCIFICATION PATTERN IN EPIPHYSES; THEIR NATURE AND SIGNIFICANCE. Am. J. Roentg., 1941, 45: 50-54. 7 refs.

55
Urist, M. R. and McLean, F. C. CALCIFICATION AND OSSIFICATION. I. CALCIFICATION IN THE CALLUS IN HEALING FRACTURES IN NORMAL RATS. J. Bone Surg., 1941, 23: 1-16. 30 refs. Abstracted in: Biol. Abstr., Balt., 1941, 15: No. 14904.

56
Urist, M. R. and McLean, F. C. CALCIFICATION AND OSSIFICATION. II. CONTROL OF CALCIFICATION IN THE FRACTURE CALLUS IN RACHITIC RATS. J. Bone Surg., 1941, 23: 283-310. 20 refs.

57
Yoshitomi, M. EXPERIMENTELLE UNTERSUCHUNG ÜBER DAS WACHSTUM UND DIE VERKALKUNG DES

CALCIFICATION - IN BONE AND CARTILAGE (Continued)

KNOCHENS. (AUSGEFÜHRT AN FEMUREN VON HÜHNEREMBRYONEN DURCH KULTUREN IN VITRO.) J. Biochem., Tokyo, 1935, 21: 37-54. 23 refs. Abstracted in: Chem. Abstr., 1935, 29: 2589[8]; Nutrit. Abstr., Aberdeen, 1935-36, 5: No. 692.

58
YU, T. F. and Gutman, A. EFFECT OF BERYLLIUM ON IN VITRO CALCIFICATION OF CARTILAGE. Proc. Soc. Exp. Biol., N. Y., 1950, 75: 481-484. 21 refs.

See:

83	213	321	322	464
472	498	555	558	884
914	947	952	959	963
965	1186	1222	1226	1228
1261	1355	1389	1398	1408
1484	1535	1766	1920	1928
1942	1943	1949	1953	2012
2013	2017	2018	2019	2041
2329	2408	2410	2585	2603
2621	2624	2633	2664	2672
2703	2704	2723	2734	2746
2782	2786	2802	2809	2820
2958				

CARTILAGE - CHEMISTRY AND METABOLISM

see also COLLAGEN AND RETICULIN and subdivisions; GLYCOPROTEINS AND MUCOPOLYSACCHARIDES and subdivisions

59
Bacsich, P. and Wlassics, T. A. PORCSEJTEK ZSIRTARTALMANAK AZ EGYÉN TAPLALTSÁGI FOKÁVAL ÉS A TUBERCULOSISSAL KAPCSOLATOS VÁLTOZÁSA. [THE VARIATION OF THE FAT CONTENT OF CARTILAGE CELLS IN RELATION TO THE DIET AND TO TUBERCULOSIS] Magy. orv. arch., 1932, 33: 274-281. 21 refs. Abstracted in: Chem. Abstr., 1933, 27: 336. "A study was made of all 3 kinds of cartilage (costal cartilage, epiglottis, intervertebral meniscus) of 100 individuals. ... In health the quantity of fat in the cells of the cartilages stands in linear relation to the degree of nourishment. Neither age nor the different (acute) diseases have any great influence upon the quantity of fat in the cells of the cartilages. There is an exception in tuberculosis cases in which much higher fat values were found than were expected from the diet. This seems to be due to the battle of the organism against tuberculosis. This proves that the cartilaginous tissue has a more important part in the metabolism of the organism and in the immunobiological functions than has been attributed to it." - Chem. Abstr.

60
Boström, H. CHEMICAL AND AUTORADIOGRAPHIC STUDIES ON THE SULPHATE EXCHANGE IN SULPHOMUCOPOLYSACCHARIDES. Ark. kem., Stockh., 1953, 6: 43-57. 43 refs.

61
Boström, H. and Mansson, B. FACTORS INFLUENCING THE EXCHANGE OF THE SULPHATE GROUP OF THE CHONDROITIN SULPHURIC ACID OF CARTILAGE IN VITRO. Ark. kem., Stockh., 1953, 6: 23-37. 24 refs.

62
Boström, H. and Odeblad, E. THE INFLUENCE OF CORTISONE UPON THE SULPHATE EXCHANGE OF CHONDROITIN SULPHURIC ACID. Ark. kem., Stockh., 1953, 6: 39-42. 9 refs. Abstracted in: Chem. Abstr., 1953, 47: 8784[f].

63
Bowie, M. A. PHYSIOLOGY OF JOINT TISSUE. M. Clin. N. America, 1940, 24: 1621-1632. 41 refs.

64
Bowie, M. A., Rosenthal, O. and Wagoner, G. OBSERVATIONS ON RESPIRATION IN ARTICULAR CARTILAGE. Ann. Rheumat. Dis., Lond., 1941, 2: 216-223. 7 refs.

65
Boyd, E. S. OXYGEN CONSUMPTION AND CHONDROITIN SULFATE SYNTHESIS BY CHICK EMBRYONIC CARTILAGE. Fed. Proc., Balt., 1953, 12: 385. An abstract.

66
Boyd, E. S. STUDIES ON CARTILAGE. 103p. University of Rochester Atomic Energy Project, Rochester, N. Y., 1953. (UR-245). Abstracted in: Nuclear Sc. Abstr., 1954, 8: No. 183.

67
Boyd, E. S. and Neuman, W. F. THE SURFACE CHEMISTRY OF BONE. V. ION-BINDING PROPERTIES OF CARTILAGE. J. Biol. Chem., 1951, 193: 243-251. 19 refs. Abstracted in: Biol. Abstr., Balt., 1952, 26: No. 5641. "Veal costal cartilage showed equal binding capacities for sodium, calcium, and barium. This capacity correlated closely with the sulfate content, indicating that chondroitin sulfate was responsible for the major portion of the binding. Phosphate was taken up from solution only by cartilage containing appreciable amounts of calcium. The binding of calcium by cartilage was shown to be an ion-exchange reaction."

68
Brower, T. D., Eichelberger, L. and Roma, M. DISTRIBUTION OF WATER, ELECTROLYTES, NITROGEN AND CHONDROITIN SULFATE IN HYALINE CARTILAGES. Fed. Proc., Balt., 1951, 10: 167. An abstract.

69
Bywaters, E. G. L. METABOLISM OF CARTILAGE. Nature, Lond., 1936, 138: 30-31. 2 refs. Abstracted in: Chem. Abstr., 1936, 30: 71777.

70
Campbell, D. and Persson, B. H. USE OF TRACK AUTORADIOGRAPHY IN STUDIES ON THE SULFUR METABOLISM OF CONNECTIVE TISSUE. PRELIMINARY RESULTS OBTAINED ON ADULT CARTILAGE. Experientia, Basel, 1951, 7: 304-306. 9 refs.

71
Cohen, J., Schwartz, R. and Wallace, W. M. LESIONS OF EPIPHYSEAL CARTILAGE AND SKELETAL MUSCLE IN RATS ON A DIET DEFICIENT IN POTASSIUM. A.M.A. Arch. Path., 1952, 54: 119-131. 12 refs. Abstracted in: Chem. Abstr., 1952, 46: 10318[b].

72
Dickens, F. and Weil-Malherbe, H. METABOLISM OF CARTILAGE. Nature, Lond., 1936, 138: 125-126. Abstracted in: Chem. Abstr., 1936, 30: 7193[7]. "Thus cartilage gives further support to the view previously expressed that the metabolic type depends on the relationship between oxygen supply and energy requirements of the tissue."

73
DiStefano, V., Neuman, W. F. and Rouser, G. THE ISOLATION OF A PHOSPHATE ESTER FROM CALCIFIABLE CARTILAGE. Arch. Biochem., N. Y., 1953, 47: 218-220. 7 refs. Abstracted in: Chem. Abstr., 1954, 48: 2145[c]. "... its presence correlates well with ability of the cartilage preparation to calcify in vitro."

74
Eichelberger, L. and Roma, M. EFFECT OF AGE ON THE HISTOCHEMICAL CHARACTERIZATION OF HYALINE CARTILAGES. Fed. Proc., Balt., 1953, 12: 200. An abstract.

CARTILAGE - CHEMISTRY AND METABOLISM (Continued)

75
Eichelberger, L., Brower, T. D. and Roma, M. HISTOCHEMICAL CHARACTERIZATION OF INORGANIC CONSTITUTENTS, CONNECTIVE TISSUE AND THE CHONDROITIN SULFATE OF EXTRACELLULAR AND INTRACELLULAR COMPARTMENTS OF HYALINE CARTILAGES. Am. J. Physiol., 1951, 166: 328-339. 21 refs. Chemical data for the values of cartilages from trachea, septa, ventral ends of the ribs, and from the surfaces of bones within the joints are presented.

76
Ekholm, R. ARTICULAR CARTILAGE NUTRITION. HOW RADIOACTIVE GOLD REACHES THE CARTILAGE IN RABBIT KNEE JOINTS. Acta anat., Basel, 1951, 11: Suppl. No. 15. 76p. Approx. 105 refs. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 34060.

77
Fawns, H. T. and Landells, J. W. HISTOCHEMICAL STUDIES OF RHEUMATIC CONDITIONS. I. OBSERVATIONS ON THE FINE STRUCTURES OF THE MATRIX OF NORMAL BONE AND CARTILAGE. Ann. Rheumat. Dis., Lond., 1953, 12: 105-113. 8 refs. Abstracted in: Chem. Abstr., 1953, 47: 10692e; Biol. Abstr., Balt., 1953, 27: No. 5915.

78
Fell, H. B. and Robison, R. GLYCOGEN IN CARTILAGE. Nature, Lond., 1933, 131: 62. Comment on Harris' article (Nature, Lond., 1932, 130: 996-997) in which the presence of glycogen in hypertrophic cartilage cells is correlated with a secretion of phosphatase of these cells. Fell and Robison point out that osteoblasts also secrete phosphatase.

79
Fisher, A. G. T. THE STRUCTURE AND FUNCTIONS OF SYNOVIAL MEMBRANE AND ARTICULAR CARTILAGE. Brit. M. J., 1939, 2: 390-393.

80
Follis, R. H., Jr. CARTILAGE AND BONE MATRIX: CHEMICAL STRUCTURE, FORMATION AND DESTRUCTION. Tr. Conf. Metab. Interrelat., 1952, 4.Conf., 11-31. Conference discussion: p. 28-31. 44 refs.

81
Fürth, O., Bruno, T., Boyer, R. and Peschek, K. UEBER DEN CHEMISCHEN AUFBAU DER KNORPELSUBSTANZ. Wien klin. Wschr., 1937, 50: 713-715. A review of pertinent literature and analytical study of the chemical structure of cartilage.

82
Gardner, E. PHYSIOLOGY OF MOVABLE JOINTS. Physiol. Rev., 1950, 30: 127-176. 521 refs.

83
Gendre, H. LE GLYCOGÈNE DANS LES CARTILAGES EN VOIE D'OSSIFICATION. Bull. histol. appl., Lyon, 1938, 15: 165-178. Abstracted in: Chem. Abstr., 1938, 32: 8512^{6}; Nutrit. Abstr., Aberdeen, 1938-39, 8: No. 3475.

84
Harris, H. A. GLYCOGEN IN BONE CARTILAGE. Nature, Lond., 1932, 130: 996-997. Abstracted in: Chem. Abstr., 1933, 27: 1666. The association of glycogen with phosphatase in senescent cartilage cells is discussed.

85
Hass, G. M. STUDIES OF CARTILAGE: III. A NEW HISTOCHEMICAL REACTION WITH HIGH SPECIFICITY FOR CARTILAGE CELLS. Arch. Path., Chic., 1942, 33: 174-181.

86
Hass, G. M. and Garthwaite, B. STUDIES OF [illegible] ON MEDIUMS OF DIFFERENT PH VALUES ON THE COMPOSITION OF CARTILAGE. Arch. Path., Chic., 1942, 33: 145-162. Abstracted in: Biol. Abstr., Balt., 1942, 16: No. 16217.

87
Hiatt, H. H. and Shorr, E. INFLUENCE OF OXYGEN TENSION ON TETRAZOLIUM REDUCTION BY EPIPHYSEAL CARTILAGE OF RACHITIC RATS IN VITRO. Proc. Soc. Exp. Biol., N. Y., 1953, 82: 543-546. 11 refs. Abstracted in: Chem. Abstr., 1953, 47: 6506e. Thin slices of epiphyseal cartilage, cut from the upper tibiae of young, mildly rachitic rats, were incubated in a solution of 2,3,5 triphenyl tetrazolium chloride under aerobic and anaerobic conditions. It was observed that the tetrazolium was "much more intensively reduced to its formazon in nitrogen than in oxygen" and that "the reduced formazon was deposited within the cartilage cell." This was considered "additional evidence for the existence of oxidative enzyme systems in cartilage cells." The literature is reviewed.

88
Hills, G. M. THE METABOLISM OF ARTICULAR CARTILAGE. Biochem. J., Lond., 1940, 34: 1070-1077. 24 refs. Abstracted in: Chem. Abstr., 1940, 34: 8750^{3}.

89
Holmdahl, D. E. ETWAS ÜBER DIE MORPHOPHYSIOLOGIE DES GELENKKNORPELS. Anat. Anz., 1951, 97: 101-103.

90
Ikuta, A. STUDIEN ÜBER DAS GLYKOGEN UND DIE MUCHSAURE IN KNORPEL. Fukuoka acta med., 1935, 28: 25-26. An abstract. Abstracted in: Nutrit. Abstr., Aberdeen, 1935-36, 5: No. 453; Chem. Abstr., 1936, 30: 4542^{7}.

91
Ingelmark, B. E. THE NUTRITIVE SUPPLY AND NUTRITIONAL VALUE OF SYNOVIAL FLUID. Acta orthop. scand., 1950/51, 20: 144-155. 16 refs.

92
Ingelmark, B. E. and Saaf, J. ÜBER DIE ERNÄHRUNG DES GELENKKNORPELS UND DIE BILDUNG DER GELENKFLUSSIG KEIT UNTER VERSCHIEDENEN FUNKTIONELLEN VERHALTNISSEN. Acta orthop. scand., 1947-1948, 17: 303-357. English summary: p. 350-357. 23 refs.

93
Kawamura, R. and Yamaguchi, M. DIE FETTE DES KNORPEL- UND KNOCHENSYSTEMS. Tr. Soc. path. jap., 1933, 23: 235-237.

94
Lacapère, J., Drieux, H. and Delaville, G. ÉTUDES CHIMIQUES SUR LE DISQUE INTERVERTÉBRAL. Presse méd., 1953, 61: 848-849.

95
Lambertini, G. SULLE MODIFICAZIONI DEL PARTICOLARE APPARATO DELLE CELLULE CARTILAGINEE IN CONDIZIONI PATOLOGICHE SPONTANEE E SPERIMENTALI, STUDIATO CON IL METODO VII DEL DONAGGIO. Boll. Soc. ital. biol. sper., 1931, 6: 1076-1078. 2 pl.

96
Laskin, D. M. and Sarnat, B. G. THE METABOLISM OF FRESH, TRANSPLANTED, AND PRESERVED CARTILAGE. Surg. Gyn. Obst., 1953, 96: 493-499. 8 refs. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 24547. A study to compare manometrically the respiration and anaerobic glycolysis phases of carbohydrate metabolism in costal cartilage of the rabbit.

CARTILAGE - CHEMISTRY AND METABOLISM (Continued)

97
Laskin, D. M., Sarnat, B. G. and Bain, J. A. RESPIRATION AND ANAEROBIC GLYCOLYSIS OF TRANSPLANTED CARTILAGE. Proc. Soc. Exp. Biol., N. Y., 1952, 79: 474-476. 8 refs. Abstracted in: Biol. Abstr., Balt., 1952, 26: No. 25190; Chem. Abstr., 1952, 46: 6223[i].

98
Lindahl, O. ON CHANGES IN THE CHLORINE CONTENT OF PATELLAR CARTILAGE AND INTERVERTEBRAL DISCS ASSOCIATED WITH DEGENERATION. Acta orthop. scand., 1948, 18: 28-31. 4 refs. By examining the chloride content in normal and degenerated cartilage, it was found that there is an increase up to 100% of chloride in degeneration. The process of cartilage degeneration is summarized as follows: "Acidosis in the body fluids; passage of chloride into non-buffered tissues, including cartilage; displacement of chondroitin sulphuric acid, and with it reduced resistance of the cartilage to mechanical wear and tear; degeneration of those parts of the cartilage which are most subjected to mechanical wear and tear."

99
Lindahl, O. ÜBER DEN WASSERGEHALT DES KNORPELS. Acta orthop. scand., 1947, 17: 134-136. 3 refs. Abstracted in: Excerpta med., Sect. 5, 1948, 1: No. 518.

100
Lussier, J. P. MODIFICATIONS HISTOLOGIQUES DU CARTILAGE DE CONJUGAISON CHEZ LE RAT AU COURS DU JEÛNE PROTÉIQUE. Rev. canad. biol., 1951, 10: 33-41. 2 pl. 3 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1951-52, 21: No. 2201; Biol. Abstr., Balt., 1952, 26: No. 473.

101
MacConaill, M. A. THE MOVEMENTS OF BONES AND JOINTS. IV. THE MECHANICAL STRUCTURE OF ARTICULATING CARTILAGES. J. Bone Surg., 1951, 33B: 251-257. 13 refs. "It is the purpose of this paper to show that the amount of collagen in hyaline cartilage is much greater than has been commonly supposed, and that its distribution is exactly that called for by the impact of stress upon the articulating surfaces."

102
Matthews, B. F. COMPOSITION OF ARTICULAR CARTILAGE IN OSTEOARTHRITIS. Brit. M. J., 1953, 2: 660-661. 5 refs. Abstracted in: Chem. Abstr., 1953, 47: 12593[c]; Excerpta med., Sect. 5, 1954, 7: No. 1091.

103
Montagna, W. GLYCOGEN AND LIPIDS IN HUMAN CARTILAGE, WITH SOME CYTOCHEMICAL OBSERVATIONS ON THE CARTILAGE OF THE DOG, CAT AND RABBIT. Anat. Rec., 1949, 103: 77-92. pl. 32 refs. Abstracted in: Biol. Abstr., Balt., 1949, 23: No. 23966.

104
Nasonov, N. V. ZNACHENIE KHRIASHCHA V FORMOOBRAZOVANII U AKSOLOTLIA. THE ROLE OF CARTILAGE IN FORMATIONS IN AXOLOTLS. C. rend. Acad. sc. URSS, 1935, 1: 413-421. In Russian and English. 5 refs.

105
Ogino, T. [ÜBER DAS VORKOMMEN DES GLYKOGENS IN KNORPELZELLEN DER KNORPELKNOCHENGRENZE DER RATTENRIPPE] Tr. Soc. path. jap., 1935, 25: 470-472.

106
Paulson, S., Sylvén, B., Hirsch, C. and Snellman, O. BIOPHYSICAL AND PHYSIOLOGICAL INVESTIGATIONS ON CARTILAGE AND OTHER MESENCHYMAL TISSUES. III. THE DIFFUSION RATE OF VARIOUS SUBSTANCES IN NORMAL BOVINE NUCLEUS PULPOSUS. Biochem. biophys. acta, Amst., 1951, 7: 207-213. 13 refs. Abstracted in: Chem. Abstr., 1952, 46: 605[h].

107
Polonovski, M. and Cartier, P. SUR LE PREMIER STADE BIOCHIMIQUE DE L'OSSIFICATION. C. rend. Acad. sc., 1951, 232: 119-121. 2 refs. Abstracted in: Chem. Abstr., 1951, 45: 5793[i]; Biol. Abstr., Balt., 1952, 26: No. 18449. In biochemical experiments in calcification of the ossifiable cartilage of the long bones of the sheep embryo only adenosine triphosphoric acid led to rapid and marked calcification.

108
Polonovski, M. and Picard, J. ACTION DES PHOSPHATES ET DES ESTERS PHOSPHORIQUES SUR LA MINÉRALISATION DU CARTILAGE OSSIFIABLE PAR L'ACIDE ADÉNOSINETRIPHOSPHORIQUE. C. rend. Acad. sc., 1952, 235: 669-670. 2 refs. Abstracted in: Chem. Abstr., 1953, 47: 10029[i]; Brit. Abstr., Sect. AIII, 1953, p. 471. Sections of ossifiable cartilage of the sheep embryo placed in solutions containing orthophosphates or other phosphoric esters, showed increased mineralization in the presence of adenosine triphosphoric acid.

109
Polonovski, M., Cartier, P. and Picard, J. EFFET DU GLUCOSE ET DU GLYCOGÈNE SUR LA MINÉRALISATION IN VITRO DU CARTILAGE OSSIFIABLE NORMAL. C. rend. Acad. sc., 1953, 237: 1287-1289. 2 refs. Abstracted in: Chem. Abstr., 1954, 48: 4085[f]; Brit. Abstr. M. Sc., 1954, p. 646. Experimental mineralization of sections of normal ossifiable cartilage of the sheep embryo demonstrated a marked antagonism between glycolysis and mineralization by adenosine triphosphoric acid.

110
Rizzoli, C. and Mastrobuono, M. OSSERVAZIONI ISTOCHIMICHE SULLA CARTILAGINE JALINA. Boll. Soc. ital. biol. sper., 1953, 29: 1418-1421. 4 refs.

111
Rosenthal, F. DAS HARNSÄUREBINDUNGSVERMÖGEN DES KNORPELS. Zschr. ges. exp. Med., 1931, 79: 536-537. 7 refs. Abstracted in: Chem. Abstr., 1932, 26: 4644.

112
Rosenthal, O., Bowie, M. A. and Wagoner, G. THE DEHYDROGENATIC ABILITY OF BOVINE ARTICULAR CARTILAGE IN RELATION TO ITS AGE. J. Cellul. Physiol., 1942, 19: 333-340. 7 refs Abstracted in: Chem. Abstr., 1942, 36: 5229[9].

113
Rosenthal, O., Bowie, M. A. and Wagoner, G. METABOLISM OF CARTILAGE, BOVINE, WITH PARTICULAR REFERENCE TO THE EFFECTS OF AGING. J. Am. M. Ass., 1940, 115: 2114-2115.

114
Rosenthal, O., Bowie, M. A. and Wagoner, G. THE NATURE OF THE DEHYDROGENATIC ABILITY OF BOVINE ARTICULAR CARTILAGE. J. Cellul. Physiol., 1942, 19: 15-28. 20 refs. Abstracted in: Biol. Abstr., Balt., 1942, 16: No. 12046; Chem. Abstr., 1942, 36: 2574[8].

115
Rosenthal, O., Bowie, M. A. and Wagoner, G. STUDIES IN THE METABOLISM OF ARTICULAR CARTILAGE. I. RESPIRATION AND GLYCOLYSIS OF CARTILAGE IN RELATION TO ITS AGE. J. Cellul. Physiol., 1941, 17: 221-233. 12 refs. Abstracted in: Chem. Abstr., 1941, 35: 4448[9].

CARTILAGE - CHEMISTRY AND METABOLISM (Continued)

116
*Sebruyns, M. DE HISTOTOPOCHEMIE VAN HET GLYCOGEN EN DE ALCALISCHE PHOSPHATASE IN HET EMBRYONNAIRE EN JONGE KRAAKBEEN. Natuurw. Tijdschr., Ghent, 1950, 32: 110-114. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 5293; Chem. Abstr., 1952, 46: 10336e.

117
Silber, W. ÜBER DIE MINERALSTOFFE DES KNORPELS. Biochem. Zschr., 1933, 257: 363-370. 11 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1933-34, 3: No. 529.

118
Sousa Pereira. A INVERSÃO DE CARTILAGEM DE CONJUGAÇÃO E A SUA INFLUÊNCIA SÔBRE O TRABALHO DE OSSIFICAÇÃO ENCONDRAL E SÔBRE O CRESCIMENTO DO ÔSSO (ESTUDO EXPERIMENTAL). Impr. méd., Lisb., 1936, 2: 393-404. French translation in: Lyon chir., 1936, 34: 513-541.

119
Sylvén, B. BIOLOGICAL ASPECTS OF THE PHYSIOLOGY OF HYALINE CARTILAGE. Acta orthop. scand., 1948, 18: 21-27.

120
Sylvén, B. BIOPHYSICAL AND PHYSIOLOGICAL INVESTIGATIONS ON LUMBAR DISKS. J. Bone Surg., 1951, 33A: 1034. An abstract. Abstracted in: Chem. Abstr., 1953, 47: 5523f.

121
Sylvén, B. CARTILAGE AND CHONDROITIN SULPHATE. II. CHONDROITIN SULPHATE AND THE PHYSIOLOGICAL OSSIFICATION OF CARTILAGE. J. Bone Surg., 1947, 29: 973-976. 15 refs. Abstracted in: Excerpta med., Sect. 5, 1948, 1: No. 517. Young rats, rat embryos and one human foetus were used in this study. It was observed that in undecalcified sections of bone, stained by a metachromatic technique, the calcified portions of cartilage and bone did not show the metachromatic staining property. This finding was interpreted as indicating that the absence of the staining material was due to removal of chondroitin sulfate during conversion of cartilage matrix to bone matrix.

122
Sylvén, B., Paulson, S., Hirsch, C. and Snellman, O. BIOPHYSICAL AND PHYSIOLOGICAL INVESTIGATIONS ON CARTILAGE AND OTHER MESENCHYMAL TISSUES. II. THE ULTRASTRUCTURE OF BOVINE AND HUMAN NUCLEI PULPOSI. J. Bone Surg., 1951, 33A: 333-340. 31 refs. Abstracted in: Chem. Abstr., 1953, 47: 3445f; Biol. Abstr., Balt., 1951, 25: No. 31054. "Data on collagen and other structural substances, such as chondroitin sulfate." - Chem. Abstr.

123
Tinacci, F. OSSERVAZIONI SUL METABOLISMO LIPIDICO DEL TESSUTO CARTILAGINEO. Riv. biol., 1952, 44: 253-263. 50 refs. English summary, p. 264-265.

124
Tinacci, F. and Agostini, C. SULLA STEATOSI SPERIMENTALE DELLA CARTILAGINE: IL COMPORTAMENTO DEL GLICOGENO ENDOCELLULARE. Riv. biol., 1952, 44: 369-379. 3 pl. 24 refs. English summary, p. 377-379. Abstracted in: Chem. Abstr., 1953, 47: 10735f.

125
Vinogradova, T. P. O NEKOTORYKH OSOBENNOSTIAKH ROSTA POZVONKOV CHELOVEKA. [CERTAIN PECULIARITIES OF GROWTH OF THE HUMAN VERTEBRAE] Arkh. pat., Moskva, 1951, 13: No. 3, 73-76. 9 refs. Results of a study on the growth and composition of the intervertebral discs, using 40 corpses of various ar olds.

126
Wagoner, G., Rosenthal, O. and Bowie, M. A. STUDIES OF THE CELL IN NORMAL AND ARTHRITIC BOVINE CARTILAGE. Am. J. M. Sc., 1941, 201: 489-495. "Histologic and metabolic studies of articular cartilage cells from young, adult and old cattle."

127
Winter, W. BEITRÄGE ZUR KENNTIS DER QUANTITATIVEN ZUSAMMENSETZUNG DES KNORPELGEWEBES. Biochem. Zschr., 1932, 246: 10-28. Approx. 35 refs. Abstracted in: Chem. Abstr., 1932, 26: 3562.

128
Wlassics, T. ÜBER DEN ZUSSAMMEHANG DER ÄNDERUNG DES FETTGEHALTES DER ZELLEN DES HYALINEN KNORPELS MIT DEM ERNAHRUNGSGRAD DES INDIVIDUUMS. Zschr. mikr. anat. Forsch., 1930, 22: 220-226. 5 refs.

See:

19	31	434	435	1108
1292	1359	1360	1475	1501
1537	1697	1924	2792	

CARTILAGE - VARIATIONS WITH AGE AND KINDS OF CARTILAGE

129
Amprino, R. DECORSO DELLE FIBRILLE COLLAGENE NELLA CARTILAGINE E SUA IMPORTANZA DAL PUNTO DI VISTA MECCANICO NELLE VARIE ETÀ. Monit. zool. ital., 1938, 48: Suppl., 123-127. Abstracted in: Biol. Abstr., Balt., 1939, 13: No. 5910. The arrangement of collagen fibrils in the hyaline cartilage of individuals of different ages was studied by special staining and polarized light, which overcame the masking of the fibrils by chondromucoid. It was observed that in tracheal cartilage the arrangement varied little with age but pronounced modifications were noted in articular cartilage, indicating a response to stress. This seemed to agree in some respects with Benninghoff's theory.

130
Amprino, R. STUDI SUL SIGNIFICATO MECCANICO DELLE FIBRILLE COLLAGENE DELLA CARTILAGINE JALINA DELL'UOMO. RICERCHE DESCRITTIVE E SPERIMENTALI IN INDIVIDUI DI VARIA ETÀ. Zschr. Zellforsch., 1938, 28: 734-760. 33 refs. Abstracted in: Biol. Abstr., Balt., 1939, 13: No. 9706. By a silver staining method the arrangement of the collagen fibrils was studied in the costal, tracheal and articular cartilage of individuals from fetal life to maturity. The effects of mechanical stress on the structure of the cartilage was also studied.

131
Amprino, R. and Bairati, A. NACHTRAG ZU DER ARBEIT ‹‹STUDI SULLE TRANSFORMAZIONI DELLE CARTILAGINI DELL'UOMO NELL'ACCRESCIMENTO E NELLA SENESCENZA››. Zschr. Zellforsch., 1935, 22: 484 (addendum). 2 refs.

132
Amprino, R. and Bairati, A. STUDI SULLE TRASFORMAZIONI DELLE CARTILAGINI DELL'UOMO NELL'ACCRESCIMENTO E NELLA SENESCENZA. I. CARTILAGINI JALINE. Zschr. Zellforsch., 1933, 20: 143-205. 58 refs. A study of the changes in tracheal and costal hyaline cartilage during growth and old age.

133
Amprino, R. and Bairati, A. STUDI SULLE TRASFORMAZIONI DELLE CARTILAGINI DELL'UOMO NELL'ACCRESCIMENTO E NELLA SENESCENZA. PARTE II. CARTILAGINI ELASTICHE. Zschr. Zellforsch., 1934, 20: 489-522. 27 refs. Study of the elastic cartilage of the outer

CARTILAGE - VARIATIONS WITH AGE AND KINDS OF CARTILAGE (Continued)

ear and epiglottis during growth and in old age indicates that this cartilage is not modified by age.

134
Amprino, R. and Bairati, A. STUDI SULLE TRASFORMAZIONI DELLE CARTILAGINI DELL'UOMO NELL'ACCRESCIMENTO E NELLA SENESCENZA. III. CARTILAGINI FIBROSE. Zschr. Zellforsch., 1934, 21: 448-482. Bibliography: p. 481-482. A study of the changes in the fibrous cartilage of the pubic symphysis and intervertebral disks from foetal life to old age.

135
Amprino, R. and Bairati, A. SULLA FREQUENZA DEI PROCESSI REGRESSIVI IN ELEMENTI SCHELETRICI CARTILAGINEI D'INDIVIDUI DI VARIE ETÀ. Boll. Soc. ital. biol. sper., 1932, 7: 673-677. Studies of structural changes in the elastic cartilage of the epiglottis and the outer ear at different ages from birth to old age. A progressive increase of elastic fibers was noted with age. The processes of regression were observed to begin in the epiglottis at 50 and in the cartilage of the outer ear at 30.

136
Amprino, R. and Bairati, A. TRASFORMAZIONI DEL TESSUTO CARTILAGINEO DELL'UOMO IN RELAZIONE ALL'ETÀ. Boll. Soc. ital. biol. sper., 1932, 7: 539-542. Studies in structural changes in the tracheal hyaline cartilage of individuals of various ages. The increased appositional growth of tracheal cartilage in old age is designed to compensate for increased cartilage degeneration.

137
Amprino, R. and Bairati, A. TRASFORMAZIONI DELLA CARTILAGINE FIBROSA DELL'UOMO NELLA SENESCENZA. Boll. Soc. ital. biol. sper., 1934, 9: 113-115. Study of structural changes in the fibrous cartilage of the intervertebral disk and pubic symphysis, with advancing age.

138
Amprino, R. and Bairati, A. TRASFORMAZIONI DELLA STRUTTURA DELLA CARTILAGINE JALINA ED ELASTICA DELL'UOMO IN RELAZIONE ALL'ETÀ. Monit. zool. ital., 1932, 43: Suppl., 150-154. Histologic studies of changes in the tracheal and costal hyaline cartilage and in the elastic cartilage of the outer ear and epiglottis of individuals of various ages. It was concluded that the progressive changes are designed to lend greater resistance to the skeleton and to compensate for cartilage degeneration.

139
Castiglioni, G. and Peregalli, P. SU ALCUNE CARATTERISTISTICHE BIOLOGICHE E STRUTTURALI DELLA CARTILAGINE ARTICOLARE UMANA. Arch. ortop., Milano, 1950, 63: 36-58. 43 refs.

140
Burrell, D. J. THE VASCULARISATION OF CARTILAGE. J. Anat., Lond., 1934, 69: 47-61. 3 pl. 20 refs. Abstracted in: Biol. Abstr., Balt., 1936, 10: No. 1955. See particularly, p. 58-59 for role of vascularization in providing nutrition of the cartilage mass and possibly osteoblasts for the formation of new ossific centers.

141
Lambertini, G. NUOVO INDAGINI SUL PARTICOLARE APPARATO DELLE CELLULE CARTILAGINE NELL'UOMO E NEI MAMMIFERI, STUDIATO CON IL METODO SETTIMO DEL DONAGGIO. Boll. Soc. ital. biol. sper., 1931, 6: 1072-1075. pl. 3 refs.

142
Lambertini, G. SULL'EXISTENZA DI PARTICOLARI STRUTTURE NEL TESSUTO CARTILAGINEO DIMOSTRATE CON L'APPLICAZIONE DEL METODO VII DEL DONAGGIO. II. Boll. Soc. ital. biol. sper., 1931, 6: 742-744. 2 pl. 2 refs.

143
Putschar, W. UEBER FETT IM KNORPEL UNTER NORMALEN UND PATHOLOGISCHEN VERHÄLTNISSEN. Beitr. path. Anat., 1931, 87: 526-539. 18 refs. Studies of cartilage of various kinds from many individuals of both sexes, from fetal life to advanced age, demonstrated that fat is a normal constituant of all cartilage cells at all ages, particularly marked in zones of proliferation, reaching a minimum after growth ends. Cartilage ground substance is always normally free of fat. Deviations from these findings are pathological.

144
Ruth, E. B. A NOTE ON THE FIBRILLAR STRUCTURE OF HYALINE CARTILAGE. Anat. Rec., 1946, 96: 93-99. pl. 5 refs. Study of hyaline cartilage from the costal cartilages and the distal epiphyses of femurs of new born infants. "Fibrillae are arranged in an alveolar structure, among which the lacunae of the chondrocytes are dispersed. About the lacunae, which vary in diameter and shape, there are thickened bands or envelopes of fibrillae. The alveolar fibrillae are continuous peripherally with fibrous perichondrium."

145
Schmidt, W. J. ZUR POLARISATIONSOPTIK DES KNORPELGEWEBES. Zschr. Zellforsch., 1952, 37: 534-546. 22 refs. Abstracted in: Excerpta med., Sect. 1, 1953, 7: No. 2123. Studies in the properties of cartilage as seen in ordinary and in polarized light, before and after tanning with sumac. Various cartilages of the lamprey and ear cartilage of cattle were used in the study.

146
*Silberberg, M. and Silberberg, R. EFFECTS OF ENDOCRINES ON AGE CHANGES IN THE EPIPHYSEAL AND ARTICULAR CARTILAGES. Endocrinology, 1942, 31: 410-418. Abstracted in: Biol. Abstr., Balt., 1943, 17: No. 1111.

147
*Zbinden, G. ÜBER FEINSTRUKTUR UND ALTERSVERÄNDERUNGEN DES HYALINEN KNORPELS IM ELEKTRONENMIKROSKOPISCHEN SCHNITTPRÄPARAT UND BEITRAG ZUR KENNTNIS DER VERFETTUNG DER KNORPELGRUNDSUBSTANZ. Schweiz. Zschr. allg. Path., 1953, 16: 165-189. Abstracted in: Excerpta med., Sect. 5, 1953, 6: No. 3801.

See:

74 112 113 115 561
947 952 1141

CELLS

148
Amprino, R. CELLULAR INTERACTIONS IN CELL DIFFERENTIATION. J. Embryol. Exp. Morph., 1953, 1: 283-285. 4 refs. In this brief survey of the affinities between different tissues in various stages of development, cartilage and bone are included.

149
Bloom, W. CELLULAR DIFFERENTIATION AND TISSUE CULTURE. Physiol. Rev., 1937, 17: 589-617. 204 refs. See particulary, Bone and cartilage: p. 602-603.

Cells (Continued)

150
Burrows, H. J. THE INTERCELLULAR PRODUCT OF A PURE CULTURE OF OSTEOGENIC CELLS IN VITRO. Arch. exp. Zellforsch., 1933, 14: 202-209. 14 refs.

151
Craciun, E. C. LA REVÉRSIBILITÉ DU PROCESSUS CELLULARIE ET PHYSICOCHIMIQUE DE L'OSSIFICATION. ROLE DE L'OSTÉOALLATOCYTE. Bull. Acad. méd. Roumanie, 1945, 17: 29-42. Abstracted in: Chem. Abstr., 1947, 41: 4550g. "An extensive review. The term osteoallatocyte is coined to replace the terms osteoblast and osteoclast since they perform a single reversible function." - Chem. Abstr.

152
Gaillard, P. J. GESETZMÄSSIGKEITEN BEIM WACHSTUM VON GEWEBEKULTUREN. II. ANALYSE DER ZELLBEWEGUNG. Protoplasma, Lpz., 1936, 25: 598-613. 8 refs. Osteogenic cells from primordial os frontale of 16-day-old chick embryos were used to study cell migration. Regularity in the migration of cells seemed to indicate that "there is no direct connection between the process of cell division and cell migration. ...an indirect connection is undeniable."

153
*Gukov, P. V. [ADSORPTION OF SUSPENSIONS BY BONE CELLS] IN: Sborn. trudov Voen. med. akad. Kirova, Leningr., 1937, p. 86-93.

154
*Hancox, N. M. OSTEOBLASTS, OSTEOCLASTS AND PARATHYROID EXTRACT IN VITRO. Liverpool, 1939. (Thesis-Univ.)

155
Heller, M. OCCURRENCE OF POSSIBLE SECRETORY GRANULES IN OSTEOGENIC CELLS. Anat. Rec., 1950, 106: 204. An abstract.

156
Heller-Steinberg, M., McLean, F. C. and Bloom, W. CELLULAR TRANSFORMATIONS IN MAMMALIAN BONES INDUCED BY PARATHYROID EXTRACT. Am. J. Anat., 1950, 87: 315-347. pl. 29 refs. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 36836; Excerpta med., Sect. 1, 1951, 5: No. 1168.

157
Huggins, C. THE COMPOSITION OF BONE AND THE FUNCTION OF THE BONE CELL. Physiol. Rev., 1937, 17: 119-143. Approx. 265 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1937-38, 7: No. 496.

158
Krompecher, I. and Berencsi, G. AZ EMBERI CSONTSEJTEK ALAKI KÜLÖNBÖZÖSEGE A CSONTFEJLÖDÉS MÖDJA SZERINT ELKÜLÖNITVE. [MORPHOLOGIC VARIATIONS OF HUMAN CELLS DIFFERENTIATED ACCORDING TO 3 TYPES OF OSSIFICATION] Magy. orv. arch., 1937, 38: 112-115.

159
Logan, R. A. THE ROLE OF OSTEOBLASTS AND OSTEOCLASTS IN OSTEOGENESIS. Am. J. Orthodont., 1942, 28: 561-566. 3 refs.

160
Sturm, K. DIE LAGE DES ISOELEKTRISCHEN PUNKTES BEI DEN OSTEOBLASTEN UND OSTEOCYTEN. Zschr. mikr. anat. Forsch., 1935, 37: 595-600. 7 refs.

161
Tischendorf, W. and Heckner, F. DER HÄMATOLOGISCHE NACHWEIS VON OSTEOBLASTEN UND OSTEOKLASTEN UND IHRE BEDEUTUNG FÜR DIE NORMALE KNOCHENBILDUNG UND FÜR DIE ENTSTEHUNG BÖSARTIGER GESCHWÜLSTE IM SKELETSYSTEM. Klin. Wschr., 1950, 28: 21-24. 20 refs. Abstracted in: Excerpta med., Sect. 5, 1951, 4: No. 2979.

See:

886 909 1875 2261 2414

CELLS - OSTEOBLASTS

162
Ajello, L. SISTEMA OSSEO E SISTEMA RETICOLO-ENDOTELIALE. RICERCHE SPERIMENTALI. Arch. ital. anat. pat., 1930, 1: 935-944. 16 refs. Vital staining with trypan blue in adult and newborn guinea pigs resulted in the blocking of certain apparently osteoblastic cellular elements, which indicated a relationship between the reticulo-endothelial and osseous systems.

163
Cappellin, M. CONTRIBUTO ALLA CITOLOGIA FUNZIONALE DEGLI OSTEOBLASTI. Boll. Soc. ital. biol. sper., 1948, 24: 1228-1229. Abstracted in: Excerpta med., Sect. 9, 1950, 4: No. 5090. The bones of chick embryos and of new-born chicks were studied for the presence and distribution of the nucleic acids in the osteoblasts.

164
Cappellin, M. CONTRIBUTO ALL'INDAGINE CITOCHIMICA DEGLI ACIDI NUCLEINICI NEGLI OSTEOBLASTI. Chir. org. movim., 1949, 33: 410-421. 58 refs. Abstracted in: Excerpta med., Sect. 2, 1950, 3: No. 4806. Periosteal ossification was studied in the femurs of 16-day-old chick embryos and of new-born chicks, and in the phalanges of the human finger. Determinations were made of the presence and distribution of ribonucleic and thymonucleic acids in the cytoplasm of the osteoblasts. It was found that only traces of the nucleic acids were present in the fibrocytes of the outer stratum of the periosteum, that the quantities increased as the cells differentiated into osteoblasts and that osteoblasts of epithelioid appearance contained very high concentrations of the acids, which decreased as the osteoblasts were transformed into osteocytes. The article contains a review of the literature.

165
Cartier, P. OSSIFICATION ET RESPIRATION CELLULAIRE. Internat. Congr. Biochem., 1. meet., 1949, 573-574. Abstracted in: Chem. Abstr., 1954, 48: 843g.

166
Clavert, J. SUR LA TENEUR EN ACIDE RIBONUCLÉIQUE DES CELLULES DE L'OS. C. rend. Acad. sc., 1950, 231: 998-999. 5 refs.

167
Dubreuil, G., Charbonnel, M. and Massé, L. LES PROCESSUS NORMAUX ET PATHOLOGIQUES DE L'OSTÉOGÉNÈSE. LE RÔLE DES OSTÉOBLASTES (À LA LUMIÈRE DES FAITS EXPÉRIMENTAUX ET PATHOLOGIQUES). Ann. anat. path., Par., 1933, 10: 337-362. 33 refs. Abstracted in: Biol. Abstr., Balt., 1935, 9: No. 8109.

168
Dubreuil, G., Charbonnel, M. and Massé, L. LES PROCESSUS NORMAUX ET PATHOLOGIQUES DE L'OSTÉOGÉNÈSE. LES THÉORIES ET LE RÔLE DES OSTÉOBLASTES. Ann. anat. path., Par., 1933, 10: 225-270. 4 refs. A digest in: Bull. Soc. nat. chir., Par., 1933, 59: 1028-1031.

169
Esser, M. OSTEOBLASTEN UND OSTEOKLASTEN IN KNOCHENMARKAUSSTRICHEN. Helvet. med. acta, 1945, 12: 265-271. 7 refs. Abstracted in: Schweiz. med. Wschr., 1945, 75: 271.

170
Ferro-Luzzi, G. CONSIDERAZIONI ANATOMO-PATOLOGICHE E RADIOLOGICHE SUL TESSUTO GERMINATIVO DELL'OSSO, STUDIATO SECONDO LE MODERNE VEDUTE. Arch. ital. anat. pat., 1932, 3: 983-1018. 65 refs. Abstracted in: Biol. Abstr., Balt., 1935, 9: No. 10221. "Studies from histologic preparations of ma-

CELLS - OSTEOBLASTS (Continued)

terial removed in operation and from radiograms from 21 cases of fracture and osteomyelitis, convince the author that the proliferating tissue of the bones is a special form of connective tissue, and that the cells may revert to typical connective tissue cells; osteoblasts are thus not specific." - Biol. Abstr.

171
Hecht, E. PHYSIOLOGISCHE SALZLÖSUNGEN IN DER GEWEBEZÜCHTUNG. Protoplasma, Lpz., 1934-1935, 22: 553-560. Abstracted in: Biol. Abstr., Balt., 1936, 10: No. 13062; Chem. Abstr., 1935, 29: 2989[4].

172
Hill, J. C. THE CYTOLOGY AND HISTOCHEMISTRY OF OSTEOBLASTS GROWN IN VITRO. Arch. exp. Zellforsch., 1936, 18: 496-511. pl. 25 refs. Abstracted in: Biol. Abstr., Balt., 1937, 11: No. 17189.

173
Hughes, A. F. and Swann, M. M. ANAPHASE MOVEMENTS IN THE LIVING CELL. A STUDY WITH PHASE CONTRAST AND POLARIZED LIGHT ON CHICK TISSUE CULTURES. J. Exp. Biol., Lond., 1948, 25: 45-70. 2 pl. 36 refs..

174
Knake, E. BEITRAG ZUR FRAGE DER GEWEBSKORRELATION. Virchows Arch., 1940, 306: 88-134.

175
Krompecher, S. DIE ENTWICKLUNG DER KNOCHENZELLEN UND DIE BILDUNG DER KNOCHENGRUNDSUBSTANZ BEI DER KNORPELIG UND BINDEGEWEBIG VORGEBILDETEN SOWIE DER PRIMÄREN REINEN KNOCHENBILDUNG. Anat. Anz., 1934, 78: Suppl., 34-53. Vorweisung: 234-237. Abstracted in: Biol. Abstr., Balt., 1935, 9: No. 12498.

176
Maleci, O. L'INFLUENZA DELL'ESTRATTO EMBRIONALE A VARIA CONCENTRAZIONE SU COLTURE DI OSTEOBLASTI E FIBROBLASTI. Arch. ital. anat., 1941, 45: 206-247. 24 refs.

177
Ménégaux, G. and Odiette, D. INFLUENCE DE QUELQUES MÉTAUX SUR LA FIXATION DES COMPOSÉS MINÉRAUX DANS LES CULTURES D'OSTÉOBLASTES. CONTRIBUTION À L'ÉTUDE BIOLOGIQUE DE L'OSTÉOSYNTHÈSE. Presse méd., 1935, 43: 152-155. Abstracted in: Chem. Abstr., 1935, 29: 3359[7].

178
Ménégaux, G. and Odiette, D. INFLUENCE DES MÉTAUX COUPLÉS SUR LA CROISSANCE DES CULTURES IN VITRO DE FIBROBLASTES ET D'OSTÉOBLASTES. C. rend. Soc. biol., 1935, 119: 485-487. Abstracted in: Chem. Abstr., 1935, 29: 5922[6].

179
*Neil, E. L. and Harper, H. A. ON THE ORIGIN OF OSTEOBLASTS IN THE RAT. Wasmann Collector, 1941, 4: 117-124. 3 pl. Abstracted in: Biol. Abstr., Balt., 1942, 16: No. 9820.

180
Økland, F. UNTERSUCHUNGEN ÜBER OSTEOBLASTEN IN SCHLIFFEN UND AUSSTRICHEN. Zschr. wiss. Mikr., 1939, 56: 345-355.

181
Økland, F. VON LYMPHOCYT ZU KNOCHENZELLE. Acta path. microb. scand., 1940, 17: 466-480. 34 refs. A review and discussion of the literature leads to the conclusion that osteoblasts originate from lymphocytes during one phase of their development.

182
Ragol'skaia, F. S. K VOPROSU O PROISKHOZHDENII KLETOCHNYKH ELEMENTOV, UCHASTVUIUSHCHIKH V PROTSESSE RAZRUSHENIIA I SOZIDANIIA KOSTI. [ON THE QUESTION OF THE ORIGINS OF THE CELLULAR ELEMENTS WHICH PARTICIPATE IN THE PROCESS OF BONE DESTRUCTION AND FORMATION] Usp. sovrem. biol., 1953, 35: 464-467. 7 refs. From experiments with white rats, it was considered possible that osteoblasts and osteoclasts may originate not only from the mesenchyme but also from the vital substance released in the destruction of cells and basic substance, or in the process of osteocyte disintegration. The article contains a review of the pertinent Russian literature.

183
Roche, J. and Mourgue, M. PREMIÈRES ÉTAPES DE L'OSSIFICATION DANS LES OS EMBRYONAIRES ET RÔLE DE LA PHOSPHATASE. C. rend. Acad. sc., 1942, 214: 809-811. Abstracted in: Biol. Abstr., Balt., 1945, 19: No. 21637. Studies of the first stages of ossification in the goat, sheep and tadpole embryos, and of the role of phosphatase in the ossification mechanism. It is suggested that the principal role of the osteoblasts is the secretion of enzymes: protease and phosphatase.

184
Roulet, F. STUDIEN UBER KNORPEL- UND KNOCHENBILDUNG IN GEWEBEKULTUREN. ZUGLEICH EIN BEITRAG ZUR LEHRE DER ENTSTEHUNG DER SOGENNANTEN GRUNDSUBSTANZEN. Arch. exp. Zellforsch., 1935, 17: 1-42. 65 refs.

185
Sundberg, R. D. and Hodgson, R. E. OSTEOBLASTS AND OSTEOCLASTS IN SMEARS OF BONE MARROW. Anat. Rec., 1948, 100: 717-718. An abstract.

See:

1121 1395 2415 2416 2436
2447 2523 2745 2901

CELLS - OSTEOBLASTS - BIBLIOGRAPHY

186
Murray, M. R. and Kopech, G. A BIBLIOGRAPHY OF THE RESEARCH IN TISSUE CULTURE, 1884 TO 1950. New York, Academic Press, 1953. v.1 Bone, Osteoblasts: p. 202-205.

CELLS - OSTEOCLASTS

187
Barnicot, N. A. THE SUPRAVITAL STAINING OF OSTEOCLASTS WITH NEUTRAL-RED: THEIR DISTRIBUTION ON THE PARIETAL BONE OF NORMAL GROWING MICE, AND A COMPARISON WITH THE MUTANTS GREY-LETHAL AND HYDROCEPHALUS-3. Proc. R. Soc., Ser. B, Biol. Sc., Lond., 1947, 134: 467-485. 2 pl. 24 refs. Abstracted in: Biol. Abstr., Balt., 1949, 23: No. 18851.

188
Benoit, J. and Clavert, J. COMPORTEMENT DES OSTÉOCLASTES VIS-À-VIS DE TRAVÉES OSSEUSES NON CALCIFIÉES, CHEZ LE CANARD DOMESTIQUE. C. rend. Soc. biol., 1947, 141: 911-912.

189
Benoit, J. and Clavert, J. DIFFÉRENCIATION ET COMPORTEMENT DES OSTÉOCLASTES CHEZ LES OISEAUX. Arch. anat., Strasb., 1952, 34: 63-70. 13 refs. During physiological or experimental estrogenic osteogenesis in birds, numerous osteoclasts are formed from osteoblasts. Osteoclastic differentiation and activity appear to be regulated by the parathyroid hormone.

CELLS - OSTEOCLASTS (Continued)

190
Bruno, G. SULLA ORIGINE, SULLA FUNZIONE E SULLA COSTITUZIONE DEGLI OSTEOCLASTI. Zschr. Zellforsch., 1937, 26: 407-423. 50 refs.

191
Bujard, E. OSTÉOCLASTES ET CELLULES GÉANTES. Rev. méd. Suisse rom., 1946, 66: 475-482. Abstracted in: Excerpta med., Sect. 1, 1948, 2: No. 370. Guinea pigs and some rabbits were given subcutaneous, intramuscular and intrasplenic innoculations of finely crushed fresh or preserved bone. All reactions were similar and indicated that osteoclasts originated from elements of the reticulo-endothelial system. Their origin is multiple since, though they come from histiocytes, i.e., mesenchymatous cells in a particular functional state, many cells can acquire this functional state. Osteoclasts and giant cells are regarded as equivalent elements. The theories of other authors are reviewed.

192
Ch'uan, C. H. MITOCHONDRIA IN OSTEOCLASTS. Anat. Rec., 1931, 49: 397-399. pl. 6 refs. Abstracted in: Biol. Abstr., Balt., 1932, 6: No. 17360. "As the mesenchymal cells, reticular cells, or osteoblasts become osteoclasts, their mitochondria increase in number. In areas of active bone development the osteoclasts contain more mitochondria than any other cells. These facts are taken to indicate that osteoclasts are not degenerating cells." - Biol. Abstr.

193
Dahl, B. LA THÉORIE DE L'OSTÉOCLASIE ET LE COMPORTEMENT DES OSTÉOCLASTES VIS À VIS DU BLEU TRYPAN ET VIS À VIS DE L'IRRADIATION AUX RAYONS X. Acta path. microb. scand., 1936, Suppl. 26, 234-239.

194
Dodds, G. S. OSTEOCLASTS AND CARTILAGE REMOVAL IN ENDOCHONDRAL OSSIFICATION OF CERTAIN MAMMALS. Am. J. Anat., 1932, 50: 97-127. 5 pl. 12 refs. Abstracted in: Biol. Abstr., Balt., 1933, 7: No. 22218. "The distinctive power of the osteoclast is probably its ability to destroy calcified matrix, whether of cartilage or bone. This destruction is probably carried on by secretory rather than by phagocytic action."

195
*Glättli, W. DIE OSTEOKLASTENLEHRE. 44p. Bern, 1947. (Inaug.-Diss.-Univ.)

196
Gruber, G. B. BEITRÄGE ZUR KENNTNIS DES STOFFWECHSELS IN GEWEBEN. Virchows Arch., 1948, 315: 218-225. 9 refs. In the hard tissues, the role of the osteoclasts in resorptive processes is studied. In the lungs the mesenchymal origin of phagocytic cells of the alveolar spaces in pneumonoconiosis is discussed.

197
Ham, A. W. and Gordon, S. D. NATURE OF THE SO-CALLED STRIATED BORDERS OF OSTEOCLASTS. Anat. Rec., 1952, 112: 449. An abstract. The evidence suggests that structures interpreted as the striated borders of osteoclasts may be fringed borders of bone surfaces at which resorption is occurring.

198
Hancox, N. M. MOTION PICTURE OBSERVATIONS ON OSTEOCLASTS IN VITRO. J. Physiol., Lond., 1949, 110: 205-206. pl. 5 refs. "Osteoclasts possess a peripheral undulating membrane in tissue culture, and form fine cytoplasmic filaments. These facts support the hypothesis that osteoclasts are related to wandering cells rather than to osteo-

199
Hancox, N. M. ON THE OCCURRENCE IN VITRO OF CELLS RESEMBLING OSTEOCLASTS. J. Physiol., Lond., 1946, 105: 66-71. pl. 11 refs. "In a proportion of cultures of embryonic chick bones... multinucleated giant cells wander out from the explant. These cells are considered to be osteoclasts... derived from monocytes by fusion. In vitro, they do not become transformed into other cell types."

200
Hancox, N. M. THE OSTEOCLAST. Biol. Rev. Cambridge Philos. Soc., 1949, 24: 448-471. Approx. 145 refs. Contents: Introduction.- Morphology. - Origin and fate. - Function.- Determination. - Summary.

201
Hruska, A., Jr. SULLA GENESI DEGLI OSTEOCLASTI E SUL CARATTERE DELLO STIMOLO OSTEOCLASTICO. Rass. odont., 1949, 30: 2-30. 1 ref.

202
*Kroon, D. B. BONE-DESTROYING FUNCTION OF OSTEOCLASTS (KOELLIKER'S "BRUSH BORDER"). Acta anat., Basel, 1954, 21: 1-18.

203
Noyes, F. B. A STUDY OF OSTEOCLASTS. Angle Orthodont., 1933, 3: 83-93.

204
Rumiantsev, A. V. and Berezkina, L. F. FURTHER OBSERVATIONS ON TRANSFORMATION OF OSTEOCLASTS IN VITRO; CULTIVATION OF BONE TISSUE OF RAT AFTER ADMINISTRATION OF PARATHORMONE. C. rend. Acad. sc. URSS, 1945, 46: 168-170. 5 refs.

205
Zawisch, C. HISTORISCHKRITISCHES UND NEUES ZUR FRAGE DER OSTOKLASTEN, IHRER ENTSTEHUNG UND DER RESORPTION IM KNOCHEN. Zschr. mikr. anat. Forsch., 1931, 27: 106-210. 75 refs.

See:

169 182 185 2523 2745
2804 2901

CELLS - OSTEOCYTES

206
Cappellin, M. RICERCHE SUI RAPPORTI TRA CELLULE CON FUNZIONE OSTEOBLASTICA E CELLULE CON FUNZIONE ISTIOCITARIA NELLE PRIME FASI DELLO SVILUPPO EMBRIONALE. Arch. ital. anat., 1951, 56: 72-92. 35 refs. Abstracted in: Excerpta med., Sect. 1, 1952, 6: No. 90. Trypan blue was injected into the air space, allantois and under the skin of chick embryos incubated from 6 to 20 days and studies were made of the development of osteoblasts, first from mesenchyme cells and later from histiocytes. This transformation of histiocytes into osteoblasts did not appreciably affect ossification processes. The mesenchyme was not histiocytic; histiocytes were the product of cell differentiation in various organs when organogenesis had reached a certain state of development. The definition of histiocytes as "undifferentiated embryonal" cells is considered incorrect since the elements of the first stages of development are not granulopectic and granulopexia is a complex function which is developed slowly in the connective tissue. The article contains a review of the literature.

207
Lipp, W. NEUUNTERSUCHUNGEN DES KNOCHENGEWEBES. MORPHOLOGIE, HISTOCHEMIE UND BEEINFLUSSUNG DURCH DAS PERIPHERE, VEGETATIVE NERVENSYSTEM, DURCH FERMENTE UND

CELLS - OSTEOCYTES (Continued)

HORMONE. Acta. anat., Basel, 1954, 20: 162-200. 35 refs. English and French summaries. Detailed morphological and histochemical study of the "capsules" of the osteocyte processes in sections of human, guinea pig and hamster bone.

208
Rutishauser, E. PHYSIOPATHOLOGY OF BONE TISSUE: THE OSTEOCYTES AND FUNDAMENTAL SUBSTANCE. Bull. Hosp. Joint Dis., N. Y., 1951, 12: 468-490. 45 refs. Abstracted in: Chem. Abstr., 1953, 47: 728d; Excerpta med., Sect. 1, 1952, 6: No. 1761.

CHEMISTRY

209
Achard, J. PHYSIKOCHEMISCHE UNTERSUCHUNGEN AM LAMELLÄREN KNOCHEN. Zschr. Zellforsch., 1935, 23: 573-588. 24 refs.

210
Ascenzi, A. ON THE EXISTENCE OF BONDS BETWEEN OSSEIN AND INORGANIC BONE FRACTION. Science, 1950, 112: 84-86. 10 refs. Abstracted in: Chem. Abstr., 1950, 44: 9539i.

211
Cartier, P. CONTRIBUTION À L'ÉTUDE BIOCHIMIQUE DE L'OSSIFICATION. 111p. Paris, 1946. (Thèse-Paris). Approx. 125 refs.

212
Crétin, A. CONTRIBUTION À L'ÉTUDE HISTOCHIMIQUE DU SQUELETTE HUMAIN DANS SON DÉVELOPPEMENT, SA RÉPARATION ET SES ALTÉRATIONS CHRONIQUES. Strasbourg méd., 1953, 4: 555-567.

213
Dallemagne, M. J. LA BIOCHIMIE DE L'OSSIFICATION. J. radiol. electr., 1951, 32: 176-188. Approx. 125 refs. Also in: Stetoscopio, 1951, 1: 854-879. A critical review of the principal theories of calcification and of the chemical composition of bone salts.

214
Dallemagne, M. J. RÉFLEXIONS SUR LA BIOCHIMIE DE L'OS. Schweiz. med. Wschr., 1952, 82: 845-848.

215
Dallemagne, M. J. and Mélon, J. NOUVELLES RECHERCHES RELATIVES AUX PROPRIETES OPTIQUES DE L'OS: LA BIRÉFRINGENCE DE L'OS MINÉRALISÉ; RELATIONS ENTRE LES FRACTIONS ORGANIQUES ET INORGANIQUES DE L'OS. J. Washington Acad. Sc., 1946, 36: 181-195. 15 refs. Abstracted in: Biol. Abstr., Balt., 1946, 20: No. 17299; Chem. Abstr., 1946, 40: 6103b. "The density, index of refraction and birefringence of sections of the diaphyses of ox femurs were determined. ... The data were submitted to mathematical analysis. It was concluded that the birefringence of fresh bones is due to that of the individual mineral crystals plus that due to the arrangement of these crystals, the water, and the organic material of the bones. There was no evidence for the existence of a combination between the organic matter and the $Ca_3(PO_4)_2$." - Biol. Abstr.

216
Deakins, M. [L.] CORRELATION BETWEEN DENSITY AND ASH, ORGANIC, AND WATER CONTENTS OF CALCIFIED TISSUES. Proc. Soc. Exp. Biol. N. Y., 1941, 46: 62-64. 6 refs.

217
Follis, R. H., Jr. SOME HISTOCHEMICAL OBSERVATIONS ON NORMAL AND DISEASED CARTILAGE AND BONE. Tr. Conf. Metab. Interrelat., 1949, 1.meet., 27-32. 7 refs. Discussion: p. 31-32.

218
Forbes, R. M., Cooper, A. R. and Mitchell, H. H. THE COMPOSITION OF THE ADULT HUMAN BODY AS DETERMINED BY CHEMICAL ANALYSIS. J. Biol. Chem., 1953, 203: 359-366. 16 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1954, 24: No. 622. Includes composition of the individual bones as well as of the entire skeleton on various bases. Data is summarized in tables.

219
Garcia, I. ESSAI D'ÉTUDE CHIMIQUE DU RAPPORT SQUELETTE-MASSE ACTIVE DES ORGANISMES AU COURS DE LA CROISSANCE ET DE DIVERSES CARENCES. 127p. Marseille, 1935.

220
Gassmann, T. BEMERKUNGEN ZUR ARBEIT VON R. KLEMENT ÜBER DIE ZUSAMMENSETZUNG UND BILDUNG VON KNOCHENSTÜTZSUBSTANZ. Hoppe Seyler Zschr., 1931, 201: 284. 8 refs. Abstracted: in: Nutrit. Abstr., Aberdeen, 1931-32, 1: No. 2556; Chem. Abstr., 1932, 26: 762.

221
Gassmann, T. ÜBER DEN KÜNSTLICHEN AUFBAU DER KNOCHEN UND DER ZÄHNE. I. MITTEILUNG: DARSTELLUNG VON GLYKOKOLL-HEXOLSALZ BZW. GLYKOKOLL-PHOSPHATOCALCIUMCARBONAT. Hoppe Seyler Zschr., 1930, 192: 61-69. 9 refs. Abstracted in: Biol. Abstr., Balt., 1934, 8: No. 8239; Chem. Abstr., 1931, 25: 119.

222
Lorber, M. A STUDY OF THE HISTOCHEMICAL REACTIONS OF THE DENTAL CEMENTUM AND ALVEOLAR BONE. Anat. Rec., 1951, 111: 129-144. 2 pl. 16 refs. Abstracted in: Biol. Abstr., Balt., 1952, 26: No. 31238. "Histochemical observations have been made on human and animal material regarding the presence of lipid, acid mucopolysaccharide, alkaline glycerophosphate, calcium ions and phosphate ions in the dental cementum and alveolar bone. There is a similar morphological arrangement and... chemical components of corresponding cellular and intercellular components of cementum and alveolar bone."

223
Marek, J., Wellmann, O. and Urbányi, L. NEUERE BEITRÄGE ZUR CHEMISCHEN ZUSAMMENSETZUNG GESUNDER UND RACHITISCHEN KNOCHEN. Hoppe Seyler Zschr., 1936, 240: 208-214. 6 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1936-37, 6: No. 1940; Chem. Abstr., 1936, 30: 7171^6.

224
Mitchell, H. H., Hamilton, T. S., Steggerda, F. R. and Bean, H. W. THE CHEMICAL COMPOSITION OF THE ADULT HUMAN BODY AND ITS BEARING ON THE BIOCHEMISTRY OF GROWTH. J. Biol. Chem., 1945, 158: 625-637. 39 refs. Abstracted in: Biol. Abstr., Balt., 1945, 19: No. 18222. "The chemical composition of the body of a normal adult human, 35 years of age, has been reported, with reference to moisture, ether extract, protein (N X 6.25), total ash, calcium, phosphorus, and gross energy. Individual analyses of the skeleton, musculature, skin, and many visceral organs are reported. The data from this material have been considered in connection with requirements of calcium for growth..."

225
Pietrogrande, V. and Emanuele, L. RICERCHE SUL QUANTITATIVO DI VITAMINA D NELLA OSSA. NOTA PREVENTIVA. Ortop. traumat. app. motore, 1952, 20: 45-51. Abstracted in: Chem. Abstr., 1953, 47: 4447b. In guinea pigs determinations were made of the vitamin D content of blood, liver, bone marrow and bone. Spongy bone was found to have the highest content.

CHEMISTRY (Continued)

226
Proell, F. ÜBER DEN CHEMISCHEN UND SUBMIKROSKOPISCHEN AUFBAU NORMALER UND STOFFWECHSELKRANKER HARTGEWEBE VON MENSCH UND TIER. Ber. Oberhess. Ges. Natur. Heilk., Naturw. Abt. (1947) 1948, 23: 86-99. 29 refs. A chemical and ultramicroscopic study of the organic and inorganic structures of the bones and teeth of man and animals. The structure of normal tissues and the changes caused by faulty metabolism are discussed. The pertinent literature is reviewed.

227
*Roche, J. QUELQUES NOTIONS SUR LA BIOCHIMIE GÉNÉRALE DU SYSTÈME OSSEUX. Médicine, Par., 1939, 20: 700-705.

228
Saito, M. [STUDIES ON CATTLE BONES; A PRELIMINARY REPORT. GENERAL COMPOSITION OF PIG BONES INCLUDING A NITROGEN DISTRIBUTION STUDY ON THE TOTAL PROTEINS OF PIG BONE] Rep. Inst. Sc. Res. Manchoukuo, 1936, 1: 63-82. English abstract, p. 19-22. Abstracted in: Chem. Abstr., 1937, 31: 4381[3]; Nutrit. Abstr., Aberdeen, 1937-38, 7: No. 1955.

229
Swanson, W. W. and Iob, V. COMPOSITION OF THE FETAL SKELETON. Am. J. Dis. Child., 1936, 52: 755-756. Discussion: p. 756.

230
Swanson, W. W. and Iob, V. GROWTH AND CHEMICAL COMPOSITION OF THE HUMAN SKELETON. Am. J. Dis. Child., 1940, 59: 107-111. 9 refs. Abstracted in: Chem. Abstr., 1940, 34: 5911[2]. Study of three human fetuses.

231
Weakley, C. E., Jr. and Dustman, R. B. BILATERAL VARIATION IN THE WEIGHT AND COMPOSITION OF THE LONG BONES OF SOME EXPERIMENTAL ANIMALS. J. Agr. Res., 1939, 58: 711-716. 5 refs. Abstracted in: Chem. Abstr., 1939, 33: 7368[2]; Biol. Abstr., Balt., 1939, 13: No. 9708.

232
*Weakley, C. E., Jr. and Dustman, R. B. THE COMPOSITION OF DIFFERENT SKELETAL PARTS OF EXPERIMENTAL ANIMALS. W. Virginia Agr. Exp. Sta., 1939, No. 294. 40p. Abstracted in: Chem. Abstr., 1940, 34: 2432[6]; Biol. Abstr., Balt., 1941, 15: No. 17803.

233
*Zenkevich, P. I. [ON THE FACTORS OF FORMATION OF THE LONG BONES OF THE SKELETON IN MAN. PART I. RELATION BETWEEN THE SHAPE OF THE CROSS-SECTION OF THE TIBIA AND THE SPECIFIC GRAVITY, AND CHEMICAL COMPOSITION OF THE BONE] Antrop. J., Moskva, 1937, No. 1, 26-46. 32 refs. English summary.

See:

157	540	1123	1234	1427
1559	1629	1894	1902	1922
1931	1965	1986	2001	2024
2028	2035	2045	2298	2729
2883	2918			

CHEMISTRY - EXTRA- AND INTRACELLULAR FLUID

234
Asakuma, S. DER PHOSPHORGEHALT DER LEBERLYMPHE VERGLICHEN MIT DEM DER BEINLYMPHE. Arb. Anat. Inst., Univ. Kyoto, ser. D, 1937, No. 6, 66-68. 1 ref.

235
Asakuma, S. ORGANISCHER UND ANORGANISCHER PHOSPHOR IN DER BEINLYMPHE. Arb. Anat. Inst. Univ. Kyoto, ser. D, 1937, No. 6,

236
Burns, C. M. and Henderson, N. BONE COMPOSITION IN THE NEW-BORN YOUNG OF SOME SPECIES. J. Physiol., Lond., 1935, 83: Proc. 46-47. 3 refs. Abstracted in: Chem. Abstr., 1935, 29: 6639[7].

237
Burns, C. M. and Henderson, N. CHANGES IN GROWTH AND WATER CONTENT OF THE BONES OF NEWLY BORN PUPS AND KITTENS. Biochem. J., Lond., 1936, 30: 1202-1206. 2 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1936-37, 6: No. 3496.

238
Edelman, I. S. EXCHANGE OF WATER BETWEEN BLOOD AND TISSUES. CHARACTERISTICS OF DEUTERIUM OXIDE EQUILIBRATION IN BODY WATER. Am. J. Physiol., 1952, 171: 279-296. 38 refs. Abstracted in: Chem. Abstr., 1953, 47: 3446[c]. "Our data support the view that the rate-determining step for water distribution is at the cell level, provided that the system is diffusion limited. The visceral cells constitute the bulk of the rapidly exchanging tissues, while resting skeletal muscle and bone constitute more slowly exchanging tissues."

239
Edelman, I. S., James, A. H., Baden, H. and Moore, F. D. ELECTROLYTE COMPOSITION OF BONE AND THE PENETRATION OF RADIOSODIUM AND DEUTERIUM OXIDE INTO DOG AND HUMAN BONE. J. Clin. Invest., 1954, 33: 122-131. 54 refs. Abstracted in: Biol. Abstr., Balt., 1954, 28: No. 15972.

240
Iob, V. and Swanson, W. W. THE EXTRACELLULAR AND INTRACELLULAR WATER IN BONE AND CARTILAGE. J. Biol. Chem., 1938, 122: 485-490. 9 refs. Abstracted in: Biol. Abstr., Balt., 1938, 12: No. 6426; Chem. Abstr., 1938, 32: 1771[2].

CHEMISTRY - SULPHUR

see also METABOLISM - SULPHUR

241
Barrnett, R. J. THE HISTOCHEMICAL DISTRIBUTION OF PROTEIN-BOUND SULFHYDRYL GROUPS. J. Nat. Cancer Inst., 1953, 13: 905-925. 5 pl. 39 refs. Abstracted in: Chem. Abstr., 1953, 47: 9470[i]; Excerpta med., Sect. 5, 1953, 6: No. 2072. Rat tissues were studied by a new histochemical method for the distribution of protein-bound SH groups. It was observed that the SH groups were widely distributed in rat tissues, but that some tissues were clearly negative for SH. The latter tissues were "the collagenous fibers, the matrix of bone and tracheal hyaline cartilage, mucus, the cortex of the distal half of hair shafts, and possibly elastic tissue."

242
Boström, H. and Odeblad, E. AUTORADIOGRAPHIC OBSERVATIONS ON THE INCORPORATION OF S^{35}-LABELED SODIUM SULFATE IN THE RABBIT FETUS. Anat. Rec., 1953, 115: 505-510. 2 pl. 12 refs. Abstracted in: Excerpta med., Sect. 1, 1954, 8: No. 611. "The uptake of S^{35} varied markedly in different organs, being highest in the mucopolysaccharide-containing structures."

243
Dziewiatkowski, D. D. RADIOAUTOGRAPHIC STUDIES OF SULFATE-SULFUR (S^{35}) METABOLISM IN THE ARTICULAR CARTILAGE AND BONE OF SUCKLING RATS. J. Exp. M., 1952, 95: 489-496. 3 pl. 10 refs. Abstracted in: Biol. Abstr., Balt., 1952, 26: No. 24233; Chem. Abstr., 1952, 46: 9699[i].

CHEMISTRY - SULPHUR (Continued)

244
Dziewiatkowski, D. D. RADIOAUTOGRAPHIC VISUALIZATION OF SULFUR-35 DISPOSITION IN THE ARTICULAR CARTILAGE AND BONE OF SUCKLING RATS FOLLOWING INJECTION OF LABELED SODIUM SULFATE. J. Exp. M., 1951, 93: 451-458. 2 pl. 10 refs. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 26553; Chem. Abstr., 1951, 45: 9154[e].

245
Dziewiatkowski, D. D. SULFATE-SULFUR METABOLISM IN THE RAT FETUS AS INDICATED BY SULFUR35. J. Exp. M., 1953, 98: 119-128. 2 pl. 10 refs. Abstracted in: Chem. Abstr., 1953, 47: 11416[b]; Brit. Abstr. M. Sc., 1954, p. 167. "Radioautographs of sections of the embryos showed that the S35 was highly concentrated in the cartilaginous portion of the skeleton, the concentration in the humeri of 20-day-old embryos being 30 times that in the maternal sternum."

246
*Engfeldt, B., Engström, A. and Boström, H. THE LOCALIZATION OF RADIOSULFATE IN BONE TISSUE. Exp. Cell Res., 1954, 6: 251-253.

247
Layton, L. L. THE ANABOLIC METABOLISM OF RADIOACTIVE SULFATE BY ANIMAL TISSUES IN VITRO AND IN VIVO. Cancer, Phila., 1951, 4: 198-201. 7 refs. Lateral condyle of tibia, shaft of femur and tip of tibia were among the tissues investigated in this study.

248
Singher, H. O. and Marinelli, L. DISTRIBUTION OF RADIOACTIVE SULFUR IN THE RAT. Science, 1945, 101: 414-415. 2 refs.

See:

261 672 943

CHEMISTRY - VARIATIONS WITH AGE AND KINDS OF BONE

249
Almasy, F., Krupski, A. and Ulrich, H. BEITRAG ZUR PHYSIOLOGISCHEN CHEMIE DES CA-, P-STOFFWECHSELS BEIM JUGENDLICHEN RIND. Bull. Schweiz. Akad. med. Wiss., 1952, 8: 450-475. 36 refs. Abstracted in: Chem. Abstr., 1953, 47: 7067[g]. Based on the results of earlier balance experiments on Brown Swiss calves of different ages, studies were made of the deposit of total calcium and phosphorus, of bone phosphorus and the phosphorus of soft tissues, in relation to age. It was observed that in normal development, periods of eratic growth of bone or soft tissue may alternate with periods of balanced growth of both. Mineralization disturbances follow a qualitatively similar pattern but with more marked and lasting results.

250
Alquier, J. and Michaux, A. ÉTUDE DU RAPPORT CALCIUM PHOSPHORE DANS DIVERS TISSUS, NOTAMENT DANS LES FÉMURS DU LAPIN AU COURS DE LA CROISSANCE. C. rend. Acad. sc., 1937, 205: 177-178. 2 refs. A study of 2 litters of rabbits showed that the Ca P ratio of the femurs was 1.01 and 2.22 at birth. Ratios for both litters at about 60 days were nearly equal at 1.70.

251
Baker, S. L., Butterworth, E. C. and Langley, F. A. THE CALCIUM AND NITROGEN CONTENT OF HUMAN BONE TISSUE CLEANED BY MICRO-DISSECTION. Biochem. J., Lond., 1946, 40: 391-396. 14 refs. "Tables are given showing calcium and nitrogen content of groups of samples of normal bone from (A) compact cortical bone of adult femur, (B) cancellous bone of adult femur, (C) adult rib, (D) infant rib, and of abnormal bone (E) in the form of sequestra composed of dead compact bone."

252
Belloni, L. RESISTENZA ALLA PRESSIONE DELLA DIAFISI FEMORALE NELLA SENILITÀ E AL TERMINE DELL'ACCRESCIMENTO. Boll. Soc. ital. biol. sper., 1941, 16: 277-279. 1 ref. "The experimental study shows that most of the physical and chemical properties of bone do not change with age. The greater fragility of the bones of old people must then be attributed to a lesser quantity of the component elements rather than to a qualitative difference."

253
Burns, C. M. CALCIUM SALTS OF BONE. J. Physiol., Lond., 1933, 78: Proc. 1-2. 3 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1933-34, 3: No. 1857.

254
Burns, C. M. and Henderson, N. THE MINERAL CONSTITUENTS OF BONE. II. THE INFLUENCE OF AGE ON THE MINERAL CONSTITUENTS OF BONES FROM KITTENS AND PUPS. Biochem. J., Lond., 1936, 30: 1207-1214. 10 refs. Abstracted in: Biol. Abstr., Balt., 1937, 11: No. 16003; Chem. Abstr., 1936, 30: 7191[4].

255
Cartier, P. VARIATIONS DES ANIONS ORGANIQUES DE L'OS (CITRATES ET LACTATES) AU COURS DE LA CROISSANCE. C. rend. Soc. biol., 1949, 143: 37-39. 4 refs. Abstracted in: Chem. Abstr., 1949, 43: 5841[a]. All long bones of 15 growing rabbits, at different stages of development, were analyzed for ash, nitrogen, phosphorus and calcium content and for citrate and lactate content in order to determine the possible relationship between the presence of these organic acids in bone and the degree of mineralization. It was found that variations in citrate levels were small but that the lactate content, high in the initial stages of ossification, decreased progressively with age and reached a low level in adult animals. Results are summarized in a table.

256
Cartier, P. RÉPARTITION DES ANIONS ORGANIQUES DANS LES OS LONGS. C. rend. Soc. biol., 1949, 143: 631-632. Abstracted in: Chem. Abstr., 1950, 44: 3115[h]; Excerpta med., Sect. 1, 1950, 4: No. 1420. The long bones of 5 rabbits of different ages were sawed into 3 sections, diaphysis, metaphysis and epiphysis, and mineral and organic determinations were made for each section. It was found that the citrate content remained relatively constant in all parts of the bones at various ages but that the lactate content varied greatly in proportion to the intensity of cellular activity in osseous tissue. This was interpreted as proof of a close relationship between ossification and osteoblast respiration. The results of the experiment are given in a table.

257
Dallemagne, M. J. LA DISTRIBUTION DES ÉLÉMENTS MINÉRAUX DANS LA DIAPHYSE ET LES ÉPIPHYSES RADIALES ET CUBITALES DU LAPIN ADULTE. Acta biol. belg., 1941, 1: 451-456. 4 refs. Sections from the diaphyses, distal epiphyses and diaphyses and from the proximal epiphyses of the radius and ulna of the adult rabbit were chemically analyzed for calcium, phosphorus, magnesium, carbon dioxide and total nitrogen content and the percentages of tricalcium phosphate, calcium

CHEMISTRY - VARIATIONS WITH AGE AND KINDS OF BONE (Continued)

carbonate and magnesium phosphate calculated in the different sections. It was found that the tricalcium phosphate-calcium carbonate ratio varies with the area studied. This variability is said to contradict the theory of the mass grouping of bone mineral substances in a complex calcium phosphocarbonate molecule.

258
Dallemagne, M. J. ÉTUDE COMPARATIVE DES ÉLÉMENTS MINÉRAUX ET DE L'AZOTE DANS LES CUBITUS, LES RADIUS ET LES TIBIAS DU LAPIN ADULTE. Acta biol. belg., 1941, 1: 406-409. 4 refs. Determinations were made of the content of calcium, phosphorus, magnesium, carbon dioxide and total nitrogen of mid-diaphyseal sections of the ulna, radius and tibia of adult rabbits. It was found that when calculated from the ash weight, the mineral elements were equally distributed in all the bones but that when calculated from dry bone weight there was a difference in distribution, the percentage decreasing progressively from the tibia to the radius to the ulna. Variations in the total nitrogen content indicated that the differences observed were due solely to variations in the proportion of organic substances in the bones.

259
*Deakins, M. L. CHANGES IN THE COMPOSITION OF BONE WITH AGE. J. Dent. Res., 1948, 27: 758. An abstract.

260
Dietz, A. A. DISTRIBUTION OF BONE MARROW, BONE, AND BONE-ASH IN RABBITS. Proc. Soc. Exp. Biol., N. Y., 1944, 57: 60-62. Abstracted in: Biol. Abstr., Balt., 1945, 19: No. 4399. "A study of distribution of bone marrow in rabbits showed 47% of the marrow in the hind legs, 18% in the fore legs, 6% in the ribs, sternum, and clavicles, 9% in the head, and 20% in the vertebrae. The distribution of bone marrow, bone and bone-ash in the individual bones is recorded in the tables."

261
Enselme, J., Revol, L. and Trintignac, P. TENEUR EN SOUFRE DES DIAPHYSES ET DES ÉPIPHYSES OSSEUSES. C. rend. Soc. biol., 1939, 131: 278-279. 4 refs. Abstracted in: Chem. Abstr., 1939, 33: 6926^{9}. "Dried defatted bones from adult guinea pigs were analyzed. Femur diaphyses contained (av. values) 31.5% organic matter and 0.142%S. Femur epiphyses contained 45.1 and 0.255% respectively, humerus diaphyses 31.6 and 0.098%, and humerus epiphyses 46.5 and 0.246%." - Chem. Abstr.

262
Henschen, C. DIE KRISTALLINE STRUKTUR DES KNOCHENS IN IHREN BEZIEHUNGEN ZUR PHYSIOLOGIE UND PATHOLOGIE DES SKELETTES. EINFÜHRUNGSBEISPIEL IN DIE PATHOLOGIE DES FEINBAULICHEN ZUSTANDES. (LEPTOPATHOLOGIE). Schweiz. med. Wschr., 1937, 67: 153-157; 182-185; 202-204; 223-225. Abstracted in: Chem. Abstr., 1939, 33: 2967^{5}.

263
Hess, A. F., Berliner, F. S. and Weinstock, M. AN INVESTIGATION OF THE COMPARATIVE ASH CONTENT OF THE METAPHYSES AND SHAFTS OF BONES. J. Biol. Chem., 1931, 94: 9-19. 5 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1931-32, 1: No. 2554; Chem. Abstr., 1932, 26: 764.

264
Leulier, A., Policard, A. and Revol, L. LA TENEUR EN CALCIUM ET EN PHOSPHORE DES DIVERS CONSTITUANTS HISTOLOGIQUES DES OS LONGS CHEZ LE POULET; SES VARIATIONS AU COURS DES QUATRE PREMIERS MOIS. C. rend. Soc. biol., 1941, 135: 1203-1205. Chicks of the same breed, fed the same diet, were sacrificed at weekly intervals until 4 months of age and determinations made of the calcium and phosphorus content of dried sections of the diaphysis, epiphyseal cartilage and marrow of the long bones. The diaphysis was found to be composed entirely of tricalcium phosphate. The variable calcium and phosphorus content of the epiphyseal cartilage was explained by its peculiar structure in birds. The marrow had a relatively constant content until the end of the second month when the appearance of medullary bone trabeculae caused the calcium and phosphorus levels to rise immediately. It is noted that while the calcium-phosphorus ratio in the diaphysis of chicks is 1.8, in young rats the ratio is 2., a marked species' difference.

265
MacDonald, I. CHEMICAL ANALYSIS OF HUMAN FOETAL SKULL BONES. Biochem. J., Lond., 1954, 57: 437-439. 14 refs. There is "an increase in the proportions of calcium and carbonate as the foetus approaches maturity, but no such increase in phosphorus and collagen. ... The inorganic chemical composition of growing membrane bone... may consist of a mixture of apatite, brushite and calcium carbonate or of a mixture of calcium phosphate, calcium carbonate and small amounts of other calcium salts."

266
*Máriássy, B. [CHEMICAL COMPOSITION OF THE BONES OF HORSES OF DIFFERENT AGES] Közl. összehas. élet & kórti, 1940, 29: 35-36. Abstracted in: Chem. Abstr., 1941, 35: 2576^{2}.

267
Monetti, G. COMPORTAMENTO DELLE FRAZIONI DI P ACIDOSOLUBILE NEL TESSUTO OSSEO DI ETÀ DIVERSE. Biochim. ter. sper., 1941, 28: 308-317. 14 refs. English, French and German summaries. Abstracted in: Chem. Abstr., 1946, 40: 3168^{4}.

268
*Neal, W. M., Palmer, L. S., Eckles, C. H. and Gullickson, T. W. EFFECT OF AGE AND NUTRITION ON THE CALCIUM PHOSPHATE-CALCIUM CARBONATE RATIO IN THE BONES OF CATTLE. J. Agr. Res., 1931, 42: 115-121. 12 refs. Abstracted in: Chem. Abstr., 1931, 25: 5451; Nutrit. Abstr., Aberdeen, 1931-32, 1: No. 892.

269
Roche, A. and Garcia, I. RECHERCHES SUR L'OSSIFICATION. I. OSSIFICATION NORMALE ET CONSTITUTION DE RÉSERVES MINÉRALES DANS LES OS AU COURS DU DÉVELOPPEMENT. Bull. Soc. chim. biol., Par., 1936, 18: 1014-1026. 8 refs. Abstracted in: Biol. Abstr., Balt., 1937, 11: No. 18518; Chem. Abstr., 1936, 30: 7648^{4}.

270
Roche, A. and Garcia, I. VARIATIONS DU RAPPORT: PHOSPHORE-AZOTE DE L'OS AU COURS DE LA CROISSANCE CHEZ LE RAT. C. rend. Soc. biol., 1934, 116: 1029-1032. 2 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1934-35, 4: No. 2538.

271
Strobino, L. J. and Farr, L. E. THE RELATION TO AGE AND FUNCTION OF REGIONAL VARIATIONS IN NITROGEN AND ASH CONTENT OF BOVINE BONES. J. Biol. Chem., 1949, 178: 599-609. 5 refs. Abstracted in: Biol. Abstr., Balt., 1950, 24: No. 1867; Chem. Abstr., 1949, 43: 5844^{h}.

CHEMISTRY - VARIATIONS WITH AGE AND KINDS OF BONE (Continued)

272
Swanson, W. W. and Iob, V. MINERAL COMPOSITION OF THE BONE AND CARTILAGE OF THE HUMAN FETUS. Am. J. Dis. Child., 1937, 54: 1025-1029. 9 refs. Abstracted in: Chem. Abstr., 1938, 32: 7099[5]; Nutrit. Abstr., 1937-38, 7: No. 5031.

273
*Weinges, K. F., Leppelmann, H. J. and Hartl, F. ÜBER DEN CALCIUM-, PHOSPHAT-UND CARBONATGEHALT MENSCHLICHER SKELETTEILE IM ZUSAMMENHANG MIT FRAGEN DER KNOCHENSTRUKTUR UND IHRES UMBAUES UNTER NORMALEN UND KRANKHAFTEN BEDINGUNGEN. Klin. Wschr., 1953, 31: 1057-1059. Abstracted in: Chem. Abstr., 1954, 48: 4076[h].

See:

240	350	354	357	380
381	412	572	2263	2875

CHEMISTRY, INORGANIC

see also METABOLISM, INORGANIC; TRACE ELEMENTS and subdivisions

274
Andreatta, C. and Forni, I. RICERCHE ROENTGENOGRAFICHE SUL COMPONENTE MINERALI DELL'OSSO UMANO NATURALE NON POLVERIZZATA E SULL'OSSA DEMINERALIZZATO. Atti Accad. naz. Lincei, Rendic., Class. sc. fis., 1952, 13: 14-18. 12 refs. Abstracted in: Chem. Abstr., 1953, 47: 6524[d]. Roentgenograms of splinters of dry bone from a human femur before and after demineralization indicated conclusively that "the mineral component of natural human bone, not pulverized nor thermically treated in any way, is an apatite." A measurable line in the roentgenograms of completely demineralized bone suggested that, "its is not improbable that the 15.5^{o} line in the demineralized bone diagrams may be attributed to the organic substance of the bone." The article is preceded by a review of the literature.

275
Bale, W. F. A COMPARATIVE RÖNTGEN-RAY DIFFRACTION STUDY OF SEVERAL NATURAL APATITES AND THE APATITE-LIKE CONSTITUENT OF BONE AND TOOTH SUBSTANCE. Am. J. Roentg., 1940, 43: 735-747. 24 refs. It is shown that the unit cells of bone, tooth enamel, dentine, hydroxylapatite, and tricalcium phosphate hydrate are identical within the range of experimental error. The inorganic substance of bone and tooth enamel tends to approximate the structure of hydroxylapatite. It is suggested that the carbonate present in these substances does not form an integral part of the apatite lattice but is present at boundary regions.

276
Bauer, G. C. H. RATE OF BONE SALT FORMATION IN A HEALING FRACTURE DETERMINED IN RATS BY MEANS OF RADIO-CALCIUM. Acta orthop. scand., 1954, 23: 169-191. 14 refs.

277
Brasseur, H., Dallemagne, M. J. and Mélon, J. CHEMICAL NATURE OF SALTS FROM BONES AND TEETH AND OF TRICALCIUM PHOSPHATE PRECIPITATES. Nature, Lond., 1946, 157: 453. 7 refs. Abstracted in: Chem. Abstr., 1946, 40: 4095[9]; Nutrit. Abstr., Aberdeen, 1946-47, 16: No. 1845.

278
Brasseur, H., Dallemagne, M. J. and Mélon, J. LA NATURE DE LA SUBSTANCE MINÉRALE DE L'OS. Experientia, Basel, 1948, 4: 421-424. 12 refs. Abstracted in: Chem. Abstr., 1949, 43: 5060[c]. "X-ray patterns of bone salts and of hydrated tricalcium phosphate, before and after ignition, indicate that bone salt is not hydroxyl-apatite since it may be converted to either carbonate-apatite or oxyapatite, depending upon the loss of carbon dioxide." - Chem. Abstr.

279
Brasseur, H., Dallemagne, M. J. and Mélon, J. REMARQUES SUR LA CONSTITUTION DE L'HYDROXYLAPATITE ET DE LA CHLORAPATITE DE SYNTHÈSE PAR VOIE HUMIDE. Bull. Soc. sc. Liège, 1951, 20: 447-452. 5 refs.

280
Burns, C. M. and Henderson, N. THE MINERAL CONSTITUENTS OF BONE. I. METHODS OF ANALYSIS. Biochem. J., Lond., 1935, 29: 2385-2395. 16 refs. Abstracted in: Chem. Abstr., 1936, 30: 2599[7]. "Methods are described for the analysis of the Ca and phosphate of bone with an average accuracy of ±1.5%, and of CO_2 with an accuracy of ±3%. Analysis of bone by a method which involves filtering off an ammonium phosphomolybdate precipitate, or leaching out the salt with alkaline glycerol gives phosphate figures which are too low. In 270 analyses of bone 70% of the results were such as to indicate the presence of a phosphate not tertiary Ca or Mg phosphate."

281
Burns, C. M. and Henderson, N. THE SALTS OF YOUNG BONE. J. Physiol., Lond., 1934, 82: Proc., 7. "Variations in carbonate and phosphate content indicates that bone salts are not deposited as a compound of calcium phosphate and carbonate, but rather as a mixture. The chemical changes in bone under different conditions cannot be deduced from the chemical composition unless changes in size and modelling are also considered."

282
Cartier, P. LES CONSTITUANTS MINÉRAUX DES TISSUS CALCIFIÉS. I. LA STRUCTURE MINÉRALE DE L'OS, DE LA DENTINE ET DU CÉMENT. Bull. Soc. chim. biol., Par., 1948, 30: 65-73. 17 refs. Abstracted in: Chem. Abstr., 1948, 42: 7852[f]. Solubility studies were made of samples of bone, dentine and cement in buffered solutions of different degrees of acidity and the solubility curves compared with those of alpha tricalcium phosphate, calcium carbonate and natural carbonate apatite (dahllite). These studies and determinations of variations in the calcium-phosphorus ratio in the different solutions indicated that the mineral composition of the tissues studied was a simple mixture of alpha tricalcium phosphate and calcium carbonate.

283
Cartier, P. LES CONSTITUANTS MINÉRAUX DES TISSUS CALCIFIÉS. II. LA STRUCTURE MOLÉCULAIRE DU SEL DE L'OS. Bull. Soc. chim. biol., Par., 1948, 30: 73-81. 14 refs. Abstracted in: Chem. Abstr., 1948, 42: 7852[f]; Biol. Abstr., Balt., 1949, 23: No. 15324. From solubility studies of a bone sample at various stages of demineralization it was concluded that while the major constituents of bone salts are alpha tricalcium phosphate and calcium carbonate, minor quantities of other minerals are also present as calcium citrate, trimagnesium phosphate, magnesium carbonate, secondary sodium phosphate and protein-bound calcium and phosphorus.

284
Cartier, P. and Barraud, J. ÉTUDE CHIMIQUE ET RADIOCRISTALLOGRAPHIQUE DE LA DÉMINÉRALISATION DE L'OS. J. rech. CNRS, Par., 1951, No. 16, 13-17. 15 refs. A review of the literature and discussion of current theories is followed by a summary of the author's experiments.

285
COMPOSITION OF BONES AND TEETH. Nutrit. Rev., 1949, 7: 239-242.

286
Coppo, M. RICERCHE SPERIMENTALI SULLA COMPOSIZIONE MINERALE DELLE OSSA. III. Boll. Soc. ital. biol. sper., 1934, 9: 310-314. Abstracted in: Chem. Abstr., 1934, 28: 6472[6].

287
Coppo, M. STUDI SULLA COMPOSIZIONE MINERALE DELLE OSSA. NOTA II. L'OSSO UMANO NORMALE. Fisiol. & med., Roma, 1934, 5: 237-249. 10 refs.

288
Dallemagne, M. J. CHEMICAL NATURE OF SALTS FROM BONE AND TEETH AND OF TRICALCIUM PHOSPHATE PRECIPITATES. Nature, Lond., 1946, 157: 453. 7 refs.

289
Dallemagne, M. J. LA COMPOSITION ET LA CONSTITUTION DE LA SUBSTANCE MINÉRALE OSSEUSE. LA SUBSTANCE MINÉRALE OSSEUSE RENFERME-T-ELLE DES APATITES? Acta biol. belg., 1942, 2: 301-303. 2 refs. From solubility studies of a mixture of phosphate and calcium carbonate in a solution of acetic acid and from determinations of the calcium-phosphorus ratio of the undissolved residue, it was found that the least soluble substance of bone is tricalcium phosphate and that bone does not contain apatites. But it was observed that calcination at 900° centrigrade transforms the mixture of phosphate and calcium carbonate into carbonate apatite. The theories of Policard and Roche are reviewed and refuted and Dallemagne's own earlier theories are revised.

290
Dallemagne, M. J. LA COMPOSITION ET LA CONSTITUTION DE LA SUBSTANCE MINÉRALE OSSEUSE. L'INDÉPENDANCE DU PHOSPHATE TRICALCIQUE ET DU CARBONATE CALCIQUE DANS LES SELS OSSEUX NON CALCINÉS. Acta biol. belg., 1942, 2: 298-300. 2 refs. From studies of the calcium solubility of various bone sections, before and after calcination, in hydrochloric acid solutions of increasing strength and from determinations of the mineral content of the resulting filtrates, it was concluded that before calcination the mineral substance of bone is essentially a mixture of tricalcium phosphate and calcium carbonate but that after calcination at 900° centigrade it is essentially a carbonate phosphorus combination of the carbonate apatite type.

291
*Dallemagne, M. J. LA NATURE CHIMIQUE DE LA SUBSTANCE MINERALE OSSEUSE; PREMIERS ESSAIS D'INTERPRETATION DE CERTAINS PHENOMENES PHYSIOPATHOLOGIQUES DE L'OS À LA LUMIERE DE CES NOTIONS NOUVELLES. Liege, Gordinne, 1943. (Thèse d'Agregation de l'Enseignement Superieur.)

292
Dallemagne, M. J. QUELQUES CONSIDÉRATIONS D'ORDRE QUALITATIF AU SUJET DES MATIÈRES MINÉRALES DES RADIUS, DES CUBITUS ET DES TIBIAS DU LAPIN ADULTE. Acta biol. belg., 1941, 1: 409-413. 6 refs. From the results of an experiment previously described in which determinations were made of the calcium, phosphorus, magnesium and carbon dioxide of mid-diaphyseal sections of the bones of adult rabbits' legs, the qualitative grouping of these chemical elements was studied. Exception is taken to the theory of Klement and Trömel that bone is exclusively hydroxyapatite, but it is concluded that, in addition to the small quantity of carbonate apatite which forms the chemical axis of bone, there probably exists a small percentage of hydroxyapatite and that around these two fundamental substances the mass of phosphate and calcium carbonate is grouped.

293
Dallemagne, M. J. SOME RECENT FACTS ABOUT THE PROPERTIES OF TRICALCIUM PHOSPHATE AND THE COMPOSITION OF THE BONE SALT. Tr. Conf. Metab. Interrelat., 1952, 4.Conf., 154-168. Conference discussion: p. 166-168. 24 refs.

294
*Dallemagne, M. J. and Brasseur, H. LA DIFFRACTION DES RAYONS X PAR LA SUBSTANCE MINÉRALE OSSEUSE. Bull. Soc. sc., Liége, 1942, 11: 451-462; 488-495. Abstracted in: Chem. Abstr., 1944, 38: 2977[9]; 4296[9].

295
Dallemagne, M. J. and Brasseur, H. LA NATURE DU SEL PRINCIPAL DE L'OS ETUDIÉE PAR LA DIFFRACTION DES RAYONS X; UN CAS D'INTERPRETATION DIFFICILE. Experientia, Basel, 1947, 3: 469-471. 11 refs. Abstracted in: Chem. Abstr., 1948, 42: 2657[f].

296
Dallemagne, M. J. and De Rycker, H. LA COMPOSITION ET LA CONSTITUTION DE LA SUBSTANCE MINÉRALE OSSEUSE. L'ANALYSE THERMIQUE DE LA SUBSTANCE MINÉRALE OSSEUSE. Acta biol. belg., 1942, 2: 445-447. 3 refs. Study of the reactions of bone salts to various degrees of temperature at different atmospheric pressures. This analysis is said to corroborate the conclusions of chemical and x-ray diffraction studies previously described.

297
Dallemagne, M. J. and Mélon, J. LA FORMATION DE BRUSHITE À PARTIR DES SELS OSSEUX OU DENTAIRES. Bull. Soc. chim. biol., Par., 1945, 27: 597-599. 17 refs. Abstracted in: Chem. Abstr., 1946, 40: 6140[1]. Experiments, in which brushite was obtained from alpha tricalcium phosphate, from bone, dental cement and dentin, were considered further proof that the principal mineral component of these structures is alpha tricalcium phosphate. Brushite was not obtained from dental enamel.

298
Dallemagne, M. J. and Mélon, J. LES INDICES DE RÉFRACTION DE L'OS, DE LA DENTINE, DU CEMENT ET DE L'EMAIL. C. rend. Soc. biol., 1944, 138: 1028-1031. 8 refs. Measurement of the indices, "led to the conclusions that enamel possesses the chemical qualities of an apatite and that, contrary to current opinion, dentine and cement have not an apatite structure but have a composition similar to that of bone, i.e., a mixture of $CaCO_3$ and tri-calcium phosphate in a combination isomorphous with apatite. Calcining converts this mixture of the two salts into a phosphocarbonate combination."

299
Dallemagne, M. J. and Mélon, J. LE POIDS SPÉCIFIQUE ET L'INDICE DE RÉFRACTION DE L'OS, DE L'ÉMAIL, DE LA DENTINE ET DU CÉMENT. PREMIERS RÉSULTATS RELATIFS À LA DÉTERMINATION DE LA NATURE CHIMIQUE DES CONSTITUANTS MINÉRAUX DE LA DENT. Bull. Soc. chim. biol., Par., 1945, 27: 85-89. 8 refs. Studies of the specific gravity and refractive index of bovine bone and teeth indicate that bone, dental cement and dentine contain a mixture of alpha tricalcium phosphate and calcium carbonate but that the principal constituant of enamel is a carbonate apatite.

300
Dallemagne, M. J., Brasseur, H. and Mélon, J. LA CONSTITUTION DE LA SUBSTANCE MINÉRALE DE L'OS ET LA SYNTHÈSE DES APATITES. Bull. Soc. chim. France, 1949, 16: D138-D145. 36 refs. Abstracted in: Chem. Abstr., 1949, 43: 6716e. Objections to the theory that alpha tricalcium phosphate constitutes the main mineral substance of bone are answered by a series of x-ray diffraction studies, from which it is concluded that tricalcium phosphate really exists in the hydrated form but that, because of the instability of the compound, its preparation in a pure state requires specific and controlled conditions. The article is preceded by a review of the literature from 1862.

301
Dallemagne, M. J., Brasseur, H. and Mélon, J. L'EXISTENCE DU PHOSPHATE TRICALCIQUE α, $[CA_3(PO_4)_2]_3 \cdot H_2(OH)_2$. Bull. Soc. chim. biol., Par., 1949, 3: 425-431. 11 refs. From x-ray diffraction studies it is concluded that alpha tricalcium phosphate is a well defined chemical substance but that the molecule is unstable in an aqueous medium. The article contains a summary of the 5 principal theories in the literature.

302
Eisenberger, S., Lehrman, A. and Turner, W. D. THE BASIC CALCIUM PHOSPHATES AND RELATED SYSTEMS. SOME THEORETICAL AND PRACTICAL ASPECTS. Chem. Rev., Balt., 1940, 26: 257-296. 230 refs.

303
Fabry, C. LA FIXATION DE CHAUX PAR LE PHOSPHATE TRICALCIQUE EN MILIEU AQUEUX. Biochem. biophys. acta, Amst., 1954, 14: 401-406. 7 refs.

304
Follis, R. H., Jr. THE INORGANIC COMPOSITION OF THE HUMAN RIB WITH AND WITHOUT MARROW ELEMENTS. J. Biol. Chem., 1952, 194: 223-226. 10 refs. Abstracted in: Chem. Abstr., 1952, 46: 5170e. Analyses for calcium, phosphorus and carbonate were made and a series of normal values is presented.

305
Govaerts, J. ISOTOPIC EXCHANGES AND THE EXISTENCE OF TRICALCIUM PHOSPHATE IN BONE. Nature, Lond., 1954, 174: 831-832. 11 refs. "... our results cannot support the assumption that the principal bone component is hydroxylapatite, which absorbs phosphate enough to give a calcium phosphorus ratio of 1.94."

306
Greenwald, I. THE SOLUBILITY OF CALCIUM PHOSPHATE. II. THE SOLUBILITY PRODUCT. J. Biol. Chem., 1942, 143: 711-714.

307
Hendricks, S. B. and Hill, W. L. THE INORGANIC CONSTITUTION OF BONE. Science, 1942, 96: 255-257. Abstracted in: Biol. Abstr., Balt., 1943, 17: No. 8970; Chem. Abstr., 1943, 37: 9312. "In general, evidence now available would seem to indicate that bone contains a hydrated tricalcium phosphate type of compound instead of hydroxyapatite as widely accepted and that sodium and carbonate are essential constituents of this compound."

308
Hodge, H. C. SOME CONSIDERATIONS OF THE SOLUBILITY OF CALCIUM PHOSPHATE. Tr. Conf. Metab. Interrelat., 1951, 3. Conf., 190-204. Conference discussion: p. 200-204. 15 refs.

309
Klement, R. DIE ANORGANISCHE SKELETSUBSTANZ. IHRE ZUSAMMENSETZUNG, NATÜRLICHE UND KÜNSTLICHE BILDUNG. Naturwissenschaften, 1938, 26: 145-152. 28 refs. The inorganic skeletal structure is analyzed and compared in warm-blooded and cold-blooded animals, fish and birds.

310
Klement, R. and Trömel, G. HYDROXYLAPATIT, DER HAUPTBESTANTEIL DER ANORGANISCHEN KNOCHEN- UND ZAHNSUBSTANZ. Zschr. physiol. Chem., 1932, 213: 263-269. Approx. 25 refs. Abstracted in: Chem. Abstr., 1933, 27: 1037.

311
*Klement, R. NEUE UNTERSUCHUNGEN ÜBER DIE ANORGANISCHE KNOCHEN- UND ZAHNSUBSTANZ UND IHRE SYNTHESE. Klin. Wschr., 1937, 16: 591-593.

312
Klement, R. DIE ZUSAMMENSETZUNG DER KNOCHENSTÜTZSUBSTANZ. Hoppe Seyler Zschr., 1929, 184: 132-142. 10 refs. Abstracted in: Biol. Abstr., Balt., 1933, 7: No. 10376.

313
Klement, R. DIE ZUSAMMENSETZUNG DER KNOCHENSTÜTZSUBSTANZ UND IHRE BILDUNG. Hoppe Seyler Zschr., 1931, 196: 140-154. 28 refs. Abstracted in: Biol. Abstr., Balt., 1932, 6: No. 21876; Chem. Abstr., 1931, 25: 3702.

314
Klement, R. and Trömel, G. ZUSAMMENSETZUNG UND BILDUNG DER ANORGANISCHEN KNOCHEN- UND ZAHNSUBSTANZ. Klin. Wschr., 1933, 12: 292-294. 16 refs. Also in: Hoppe Seyler Zschr., 1932, 213: 263-269. Abstracted in: Nutrit. Abstr., Aberdeen, 1933-34, 3: No. 530; Chem. Abstr., 1933, 27: 2990.

315
Kuyper, A. C. THE CHEMISTRY OF BONE FORMATION. I. THE COMPOSITION OF PRECIPITATES FORMED FROM SALT SOLUTIONS. J. Biol. Chem., 1945, 159: 411-416. 26 refs. Abstracted in: Biol. Abstr., Balt., 1946, 20: No. 616.

316
Kuyper, A. C. THE CHEMISTRY OF BONE FORMATION. II. SOME FACTORS WHICH AFFECT THE SOLUBILITY OF CALCIUM PHOSPHATE IN BLOOD SERUM. J. Biol. Chem., 1945, 159: 417-424. 17 refs. Abstracted in: Biol. Abstr., Balt., 1946, 20: No. 617; Chem. Abstr., 1945, 39: 4936g.

317
Legrand, C., Barraud, J. and Cartier, P. ÉTUDE RADIOCRISTALLOGRAPHIQUE DU MÉLANGE PHOSPHATE TRICALCIQUE α/CARBONATE DE CALCIUM. C. rend. Acad. sc., 1952, 234: 2624-2625. 3 refs. In an effort to determine the calcium carbonate content of bone salts, radiocrystallographic studies were made of the α tricalcium phosphate and calcium carbonate mixture. It was found that it is not possible to detect calcium carbonate by X-ray diffraction when the content is inferior to 10% or 15% of the tricalcium phosphate.

318
Levinskas, G. J. SOLUBILITY STUDIES OF SYNTHETIC HYDROXYLAPATITE. (THE LATTICE OF BONE MINERAL). 134p. University of Rochester Atomic Energy Project, Rochester, N. Y., 1953. (UR-273). 125 refs. Abstracted in: Nuclear Sc. Abstr., 1954, 8: No. 473.

CHEMISTRY, INORGANIC (Continued)

319
Levinskas, G. J. SURFACE EFFECTS ON THE SOLUBILITY OF BONE SALT. Fed. Proc., Balt., 1953, 12: No. 471. In the studies reported, "a synthetic, crystalline hydroxyl apatite has been equilibrated with a series of solutions of varying composition. ... Much of the data can be explained as resulting from heteroionic exchange reactions involving the substitution of calcium ions in the crystalline surfaces by sodium and hydronium ions from the solution. Since the solid phase has been shown to vary with variations in the solution phase, it has been concluded that no single specific K_{sp} exists for the basic calcium phosphate system."

320
Logan, M. A. COMPOSITION OF CARTILAGE, BONE, DENTIN AND ENAMEL. J. Biol. Chem., 1935, 110: 375-389. 16 refs. Abstracted in: Chem. Abstr., 1935, 29: 5499[3]; Biol. Abstr., Balt., 1936, 10: No. 18598.

321
Logan, M. A. and Taylor, H. L. SOLUBILITY OF BONE SALT. J. Biol. Chem., 1937, 119: 293-307. 27 refs. Abstracted in: Chem. Abstr., 1937, 31: 5856[2]; Biol. Abstr., Balt., 1937, 11: No. 16295.

322
Logan, M. A. and Taylor, H. L. SOLUBILITY OF BONE SALT. II. FACTORS AFFECTING ITS FORMATION. J. Biol. Chem., 1938, 125: 377-390. 12 refs. Abstracted in: Biol. Abstr., Balt., 1938, 12: No. 15849; Chem. Abstr., 1938, 32: 8516[6].

323
Logan, M. A. and Kane, L. W. SOLUBILITY OF BONE SALT. IV. SOLUBILITY OF BONE IN BIOLOGICAL FLUIDS. J. Biol. Chem., 1939, 127: 705-710. 7 refs. Abstracted in: Biol. Abstr., Balt., 1939, 13: No. 7688; Chem. Abstr., 1939, 33: 2962[1].

324
MacDonald, R. P. and Kuyper, A. C. CHEMISTRY OF BONE FORMATION: RELATIONSHIP BETWEEN COMPOSITION OF INORGANIC PRECIPITATES AND THEIR SUPERNATANT SOLUTIONS. Fed. Proc., Balt., 1952, 11: 251-252. An abstract.

325
Marek, J., Wellmann, O. and Urbányi, L. WEITERE UNTERSUCHUNGEN ÜBER DEN CHEMISCHEN AUFBAU DER KNOCHENSALZE. Hoppe Seyler Zschr., 1935, 234: 165-175. 4 refs. Also in: Mezögazdasági Kutatàsok, 1935, 8: 217-225. Abstracted in: Nutrit. Abstr., Aberdeen, 1935-36, 5: No. 2844; Chem. Abstr., 1935, 29: 5865[9].

326
Morgulis, S. and Janecek, E. STUDIES ON THE CHEMICAL COMPOSITION OF BONE ASH. J. Biol. Chem., 1931, 93: 455-466. 20 refs. Abstracted in: Biol. Abstr., Balt., 1935, 9: No. 741; Nutrit. Abstr., Aberdeen, 1931-32, 1: No. 2553. "... samples of bone ash from the vertebrae of a variety of animals from fishes to mammals. On these samples determinations have been made of calcium, magnesium, potassium, phosphate and carbonate. The results indicate that the bone ash from marine fishes contains only about half as much calcium carbonate as the bone ash from higher vertebrates. There is some evidence that the bone ash does not contain $CaHPO_4$ but that there is a definite and simple molar relationship between the $Ca_3(PO_4)_2$ and $Ca(OH)_2$ pointing to the possibility that the principal component of the bone ash is a complex salt of the nature $Ca[\{Ca_3(PO_4)_2\}_6](OH)_2$." - Nutrit. Abstr.

327
Neuman, W. F. SOLUBILITY STUDIES WITH SYNTHETIC HYDROXYLAPATITE. Tr. Conf. Metab. Interrelat., 1952, 4.Conf., 235-239. 3 refs.

328
Neuman, W. F. and Mulryan, B. J. THE SURFACE CHEMISTRY OF BONE. I. RECRYSTALLIZATION. J. Biol. Chem., 1950, 185: 705-712. 14 refs. Abstracted in: Chem. Abstr., 1951, 45: 5754[i]; Fed. Proc., Balt., 1950, 9: 304. A study of the behavior of powdered fresh bone suspended in phosphate buffer. The mineral material of the bone undergoes rapid recrystallization.

329
Neuman, W. F. and Neuman, M. W. THE NATURE OF THE MINERAL PHASE OF BONE. Chem. Rev., Balt., 1953, 53: 1-45. Abstracted in: Chem. Abstr., 1953, 47: 11417[e]; Brit. Abstr. M. Sc., 1954, p. 213.

330
Neuman, W. F., Toribara, T. Y. and Mulryan, B. J. THE SURFACE CHEMISTRY OF BONE. VII. THE HYDRATION LAYER. 23p. University of Rochester,Atomic Energy Project, Rochester, N. Y., 1952. (UR-230) 25 refs. A briefer report based on this study appears in: J. Am. Chem. Soc., 1953, 75: 4239-4242. "Three kinds of evidence have been obtained which demonstrate that the crystals of hydroxyl apatite and bone are highly hydrated: a) the water is not removed by high speed centrifugation; b) the water layer does not contain the electrolytes of the bulk solution; and c) the crystals adsorb water vapor in accordance with the Brunauer, Emett, and Teller theory. It has been shown that adult, compact shaft contains little, if any, water other than that present as water of hydration. The significance of these findings is discussed."

331
Nicolaysen, R. DEN NORMALE BENDANNELSES BIOKJEMI. Norsk. mag. laegevid., 1935, 96: 855-867. 2 pl. 13 refs.

332
Pozzi, L. and Preto, E. RICERCHE SUL CONTENUTO MINERALE DELLE OSSA DEL RATTO IN SVARIATE CONDIZIONI SPERIMENTALI. Biochim. ter. sper., 1931, 18: 397-407. 14 refs. Abstracted in: Biol. Abstr., Balt., 1933, 7: No. 8242; Chem. Abstr., 1933, 27: 1667. In rats the mineral content of the hind leg bones was determined under various experimental conditions: prolonged exposure to cold, sectioning of the sciatic and crural nerves, administration of irradiated ergosterol, parathormone and trypan blue. Only trypon blue increased the mineral content. Under all other conditions the mineral content was reduced.

333
Prina, C. DIIDROTACHISTERINA E COMPORTAMENTO DEL CA, DEL P E DELLA FOSFATASI PLASMATICA E DEI TESSUTI. Arch. sc. med., Tor., 1952, 94: 120-129. 12 refs. Abstracted in: Excerpta med., Sect. 2, 1953, 6: No. 3464. In rabbits a study was made of the effects of dihydrotachysterol on plasma and tissue calcium, phosphorus and phosphate. No significant changes were noted in bone mineral composition.

334
Quartaroli, A. and Fontanelli, G. SULLA STRUTTURA CHIMICA DEL FOSFATAO TRICALCICO E DEL CALCARE NELLE FOSFORITI E NELLE OSSA. Ann. Fac. agraria, Pisa, n. ser. 1942, 5: 416-434. 6 refs. Abstracted in: Chem. Abstr., 1947, 41: 2520[e].

CHEMISTRY, INORGANIC (Continued)

335
Shear, M. J. and Kramer, B. COMPOSITION OF BONE. IX. EQUILIBRATION OF SERUM WITH DI-CALCIUM PHOSPHATE, J. Biol. Chem., 1930, 86: 677-694. 35 refs. Abstracted in: Biol. Abstr., Balt., 1932, 6: No. 6787; Chem. Abstr., 1930, 24: 4815.

336
Shear, M. J. and Offner, M. M. COMPOSITION OF BONE. XI. BINDING OF CALCIUM IONS BY SERUM. J. Biol. Chem., 1931, 91: 291-305. 21 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1931-32, 1: No. 452.

337
Silberstein, L. CONTRIBUTION À L'ÉTUDE DE LA COMPOSITION CHIMIQUE DES OS: CAS DU FÉMUR DE CHEVAL. Bull. Soc. chim. biol., Par., 1935, 17: 667-670. 20 refs. This report is essentially the same as that in: C. rend. Acad. sc., 1935, 200: 421-423.

338
Silberstein, L. SUR LA COMPOSITION CHIMIQUE DES OS: CAS DU FEMUR DE CHEVAL. C. rend. Acad. sc., 1935, 200: 421-423. 16 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1935-36, 5: No. 471; Chem. Abstr., 1935, 29: 29867.

339
Steadman, L. T., Hodge, H. C. and Horn, H. W. SPECTROCHEMICAL STUDIES OF POTASSIUM IN BONE AND TOOTH SUBSTANCE. J. Biol. Chem., 1941, 140: 71-76. 18 refs. "Potassium has been found spectrographically in bone, enamel, and dentin. Enamel contains about 0.3 per cent of potassium; in order of potassium content, enamel <dentin <bone. Increasing amounts of calcium salts, e.g., calcium phosphates, increase the amounts of potassium needed to give detectable lines in the spectra."

340
Tanzi, B. IL RAPPORTO FOSFORO/AZOTO (P/N) E CALCIO/AZOTO (CA/N) NELLE OSSA DI RATTI IN ACCRESCIMENTO TRATTAI COL BROMURO DI SODIO. Gior. clin. med., 1939, 20: 1248-1258. Abstracted in: Boll. Soc. ital. biol. sper., 1939, 14: 728-730. 7 refs.

341
Tanzi, B. SUL RAPPORTO P/N (FOSFORO/AZOTO) E CA/N (CALCIO/AZOTO) NEL TESSUTO OSSEO DI RATTI IN ACCRESCIMENTO EMATOPORFIRINIZZATI. Boll. Soc. ital. biol. sper., 1939, 14: 730-732. 7 refs. Abstracted in: Chem. Abstr., 1940, 34: 1741.

342
Thewlis, J., Glock, G. E. and Murray, M. M. CHEMICAL AND X-RAY ANALYSIS OF DENTAL, MINERAL AND SYNTHETIC APATITES. Tr. Faraday Soc., 1939, 35: 358-363. pl. 21 refs.

343
Toverud, K. U. and Toverud, G. CHEMICAL AND HISTOLOGICAL STUDIES OF BONES AND TEETH OF NEWBORN INFANTS. Acta paediat., Upps., 1933, 16: 459-467. 3 refs. Discussion: p. 466-467. Abstracted in: Chem. Abstr., 1936, 30: 30284; Biol. Abstr., Balt., 1935, 9: No. 13709.

344
Urbányi, L. A CSONTOK SÓINAK CHEMIAI SZERKEZETE. [CHEMICAL STRUCTURE OF BONES] Allatorv. lap., 1937, 60: 204-207. Abstracted in: Chem. Abstr., 1937, 31: 7098.

345
*Wadhwani, T. K. EXCHANGE MECHANISM IN BONE. Current Sc., Bangalore, 1953, 22: 229-230. Abstracted in: Brit. Abstr. M. Sc., 1954, p. 340. "A process of repeated equilibration of bone salt with NaF does not support the hypothesis, based on exchange reactions in vivo, that calcified tissues, particularly bones, can be divided into labile and non-labile parts." - Brit. Abstr.

See:

7	11	12	13	20
421	478	479	611	619
638	870	871	876	891
894	1152	1182	1205	1223
1231	1235	1241	1363	1378
1402	1404	1406	1429	1544
1545	1888	1889	1893	1905
1940	1972	2003	2132	2387
2396	2724	2829	2896	2900

CHEMISTRY, INORGANIC - CALCIUM

see also METABOLISM, INORGANIC - CALCIUM

346
Almasy, F. NEUERE ERGEBNISSE ÜBER DEN KALZIUM-PHOSPHORSTOFFWECHSEL DES RINDES. Schweiz. Arch. Tierh., 1952, 94: 813-824. 18 refs. Study of the variable conditions of bone marrow growth, showing variations in Ca and P percentage in bone and soft tissues, conditions for retention and elimination of these two elements and the role of phosphoric acid and its organic derivations.

347
Arnold, J. S. CALCIUM METABOLISM OF GROWING AND MATURE BONE. Fed. Proc., Balt., 1952, 11: 5-6. An abstract. A radioautographic study of the distribution of Ca^{45} in the bones of rats and rabbits.

348
Arnold, J. S., Johnson, K. E. and Jee, W. S. S. QUANTITATIVE RADIOAUTOGRAPHIC STUDY OF THE CONCENTRATION OF IN VIVO FIXED CA-45 IN NEW AND MATURE BONE. Fed. Proc., Balt., 1954, 13: 421. An abstract.

349
Benoit, J., Chêchan, C. and Clavert, J. ACTION DE LA FOLLICULINE SUR LE MÉTABOLISME DU CALCIUM CHEZ LES OISEAUX. III. ÉTUDE MICROPHOTOMÉTRIQUE DES RADIOGRAPHIES D'OSSIFICATION FOLLICULINIQUE CHEZ LE PIGEON DOMESTIQUE. Tr. Soc. chim. biol., 1942, 24: 1464-1468. 4 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1946-47, 16: No. 1964.

350
Bogert, L. J. and Hastings, A. B. THE CALCIUM SALTS OF BONE. J. Biol. Chem., 1931, 94: 473-481. 9 refs. Abstracted in: Chem. Abstr., 1932, 26: 1968; Nutrit. Abstr., Aberdeen, 1931-32, 1: No. 2555. No material difference in the inorganic composition of the inner and outer portions of bone was observed. Findings indicated that the chief inorganic constituent of bone is probably a crystalline salt $CaCO_3 \cdot n\ Ca_3(PO_4)_2$, where n approximates the value 2 in untreated bone.

351
Ferroni, M. and Franciosi, A. IL QUADRO BIOCHIMICO DEL MIDOLLO OSSEO. NOTA PRIMA: IL CALCIO E IL FOSFORO NEL SUCCO MIDOLLARE. Arch. pat., Bologna, 1942, 22: 459-472.

CHEMISTRY, INORGANIC - CALCIUM (Continued)

352
György, P. DIE BESONDERE STELLUNG DER SUB-EPIPHYSÄREN KNOCHENSCHICHT IM KALKSTOFF-WECHSEL ALS EINES LEICHT MOBILISIERBAREN KALKSPEICHERS. Klin. Wschr., 1930, 9: 102-104. Rats fed a calcium-poor diet, developed an osteoporosis in the sub-epiphyseal region of the long bones. The author considers this region a calcium reservoir to be drawn upon in states of calcium deficiency.

353
Maymone, B. IL CALCIO NELL'ORGANISMO ANIMALE. Italia agr., 1952, 89: 237-244.

354
Rutishauser, E. and Maulbetsch, A. DER CALCIUM-PHOSPHORGEHALT DES SKELETTS UND DES BLUTSERUMS BEI EINFACHER, SENILER OSTEOPEROSE. Beitr. path. Anat., 1934, 94: 332-344. 35 refs. Abstracted in: Chem. Abstr., 1935, 29: 22255.

355
Weidman, S. M. and Rogers, H. J. STUDIES ON THE SKELETAL TISSUES. I. THE DEGREE OF CALCIFICATION OF SELECTED MAMMALIAN BONES. Biochem. J., Lond., 1950, 47: 493-497. 10 refs. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 20657.

See:

251	264	535	1253	1369
1397	1403	1426	1456	1500
1944	1987	2187	2681	2845
2867	2872	2875	2948	2951

CHEMISTRY, INORGANIC - CARBONATE

see also METABOLISM, INORGANIC - CARBONATE

356
Armstrong, W. D., Schubert, J. and Lindenbaum, A. THE INCORPORATION OF RADIOACTIVE CARBON IN THE SKELETON AND TEETH OF RATS. J. Dent. Res., 1948, 27: 725. An abstract. "The administration of radioactive carbon as sodium carbonate and as calcium carbonate results in the incorporation of the radioactive carbon in the mineral phase and in the protein of bones and teeth."

357
Bergstrom, W. H. and Bell, E. H. THE RELATIONSHIP OF SODIUM AND POTASSIUM TO CARBONATE IN BONE, J. Biol. Chem., 1954, 206: 711-715. 13 refs. "... analyses of rat bone for Na, K, Ca, and CO_3 in normal animals of varying age and in acidotic animals are presented. The ratios CO_3:Ca, CO_3:Na + K, and Na + K:Ca are indicated. The changes observed following acidosis suggest that all of the Na and K in bone is present as Ca-O-CO_2-Na(K)." Carbonate and sodium increased with age, both in absolute amounts and in relation to calcium.

358
Buchanan, D. L. and Nakao, A. TURNOVER OF BONE CARBONATE. J. Biol. Chem., 1952, 198: 245-257. 10 refs. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 6507; Chem. Abstr., 1953, 47: 739h.

359
Dallemagne, M. J. ETUDE QUANTITATIVE ET QUALITATIVE DU CO_2 OSSEUX. Acta biol. belg., 1941, 1: 374-379. 12 refs. The carbon dioxide content of the radius, ulna and tibia of 12 adult rabbits was determined quantitatively by a conductivity method previously described and the percentage found to vary between 3 and 5 milligrams. Qualitative analysis consisted in determining the carbon dioxide content of bone powder after heating to a high temperature and comparing this result to those similarly obtained with a mixture of tricalcium phosphate and calcium carbonate and also with a staffelite, phosphorus-carbonate, combination. It was concluded that nearly all bone phosphates and carbonates form a simple mixture, but that 2.5% of all bone carbon dioxide forms a closer bond with the mass of bone minerals. The "bone salts" which Roche considered the mineral axis of bone exist in relatively small quantity, submerged in the large mass of tricalcium phosphate and calcium carbonate.

360
Delluva, A. M. and Wilson, D. W. A STUDY WITH ISOTOPIC CARBON OF THE ASSIMILATION OF CARBON DIOXIDE IN THE RAT. J. Biol. Chem., 1946, 166: 739-746. 19 refs. Abstracted in: Chem. Abstr., 1947, 41: 1741f.

361
*Gassmann, T. BEMERKUNGEN ZU DER ARBEIT VON R. KLEMENT "DER CARBONATGEHALT DER ANORGANISCHEN KNOCHENSUBSTANZ UND IHRE SYNTHESE." Ber. Deut. chem. Ges., 1937, 70: 41-42. Abstracted in: Nutrit. Abstr., Aberdeen, 1937-38, 7: No. 498; Chem. Abstr., 1937, 31: 18612.

362
Irving, L. and Chute, A. L. THE PARTICIPATION OF THE CARBONATES OF BONE IN THE NEUTRALIZATION OF INGESTED ACID. J. Cellul. Physiol., 1932, 2: 157-176. Abstracted in: Biol. Abstr., Balt., 1934, 8: No. 5608; Chem. Abstr., 1933, 27: 766. "The results indicate that the CO_2 component of the bones is more labile than the P, and that in consequence the mineral components of bone do not exist in fixed proportion."

363
*Klement, R. DER CARBONATGEHALT DER ANORGANISCHEN KNOCHENSUBSTANZ UND IHRE SYNTHESE. Ber. Deut. chem. Ges., 1936, 69: 2232-2238. Abstracted in: Biol. Abstr., Balt., 1937, 11: No. 16293; Chem. Abstr., 1937, 31: 4394.

364
Logan, M. A. and Taylor, H. L. SOLUBILITY OF BONE SALT. III. PARTIAL SOLUTION OF BONE AND CARBONATE-CONTAINING CALCIUM PHOSPHATE PRECIPITATES. J. Biol. Chem., 1938, 125: 391-397. 7 refs. Abstracted in: Chem. Abstr., 1938, 32: 85169; Biol. Abstr., Balt., 1938, 12: No. 16162.

365
*Mayer, F. K. [THE MODIFICATIONS OF CALCIUM CARBONATE IN THE SHELLS AND SKELETONS OF ORGANISMS] Chem. Erde., 1932, 7: 346-350. Abstracted in: Chem. Abstr., 1932, 26: 5583.

366
Sobel, A. E., Rockenmacher, M. and Kramer, B. THE CARBONATE CONTENT OF BONE IN RELATION TO THE COMPOSTION OF BLOOD AND DIET. J. Biol. Chem., 1945, 158: 475-489. 34 refs. "The changes in bone CO_3:Ca ratio... are related to changes in the CO_2:P ratio of the serum. The serum CO_2:P ratios in turn are influenced by the dietary Ca:P ratios and levels, modified by vitamin D and other factors. The implications of these findings on the understanding of the mechanism of bone formation are discussed."

CHEMISTRY, INORGANIC - MAGNESIUM

367
Aguilar, A. CONTRIBUCIÓN AL ESTUDIO DEL MAGNESIO HEMÁTICO EN CONDICIONES NORMALES Y PATOLÓGICAS. Sem. méd., B. Air., 1934, No. 36, 691-720. 288 refs. Abstracted in: Chem. Abstr., 1934, 28: 7350[2].

368
Cannavó, L. and Capizzi, I. SUL CONTENUTO IN MAGNESIO DI ALCUNI ORGANI DEL CONIGLIO. Boll. Soc. ital. biol. sper., 1933, 8: 354-355. Abstracted in: Chem. Abstr., 1933, 27: 5800.

369
Cartier, P. and Simonart, J. RÉACTION DE L'OS ADULTE À L'IMPLANTATION DE MAGNÉSIUM MÉTALLIQUE. C. rend. Soc. biol., 1946, 140: 393-395. Abstracted in: Chem. Abstr., 1947, 41: 3868[f]. Tibiae of adult rats were drilled and small pieces of magnesium wire inserted in the holes in the upper metaphysis. Chemical and histological analyses made 35 to 45 days later indicated that the implants had caused local activation of bone phosphatase and a disturbance of calcium and phosphorus metabolism manifested by bone thickening, or demineralization with elevated calcium, phosphorus and serum phosphatase levels.

370
Cunningham, I. J. THE DISTRIBUTION OF MAGNESIUM IN THE ANIMAL ORGANISM AND THE EFFECT OF DIETARY MAGNESIUM. N. Zealand J. Sc., 1936, 18: 419-423. 4 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1936-37, 6: No. 5089.

371
Duckworth, J. and Godden, W. THE REPLENISHMENT OF DEPLETED SKELETAL RESERVES OF MAGNESIUM. Biochem. J., Lond., 1943, 37: 595-598. 7 refs. Abstracted in: Chem. Abstr., 1944, 38: 2380[4].

372
Jenner, H. D. and Kay, H. D. THE PHOSPHATASES OF MAMMALIAN TISSUES. III. MAGNESIUM AND THE PHOSPHATASE SYSTEM. J. Biol. Chem., 1931, 93: 733-748. 6 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1931-32, 1: No. 2485. The function of magnesium as a specific activator for various tissue phosphatases including bone was studied.

373
Klement, R. BASICHE PHOSPHATE ZWEIWERTIGER METALLE. I. BASICHE MAGNESIUMPHOSPHATE. Zschr. anorgan. allg. Chem., 1936, 228: 232-240. 17 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1936-37, 6: No. 3499. "Experiments on the hydrolysis of $MgHPO_4$ were carried out to determine the possible state of combination of Mg in bone." - Nutrit. Abstr.

374
Orent, E. R., Kruse, H. D. and McCollum, E. V. STUDIES ON MAGNESIUM DEFICIENCY IN ANIMALS. VI. CHEMICAL CHANGES IN THE BONE, WITH ASSOCIATED BLOOD CHANGES, RESULTING FROM MAGNESIUM DEPRIVATION. J. Biol. Chem., 1934, 106: 573-593. 38 refs. Abstracted in: Biol. Abstr., Balt., 1935, 9: No. 18358; Chem. Abstr., 1934, 28: 6815[9].

375
Robuschi, L. INFLUENZA DELL'ERGOSTERINA IRRADIATA SUL CONTENUTO IN MAGNESIO DELLE OSSA. Atti Soc. med. chir. Padova, 1933, ser. 2, 11: 248-254. 13 refs.

376
Robuschi, L. IL MAGNESIO NELLE OSSA DI ANIMALI TRATTATI CON ERGOSTERINA IRRADIATA. Boll. Soc. ital. biol. sper., 1933, 8: 675-679. Abstracted in: Chem. Abstr., 1934, 28: 5097.

377
Rubegni, R. INFLUENZA DI UN TRATTAMENTO PROLUNGATO CON UN SALE DI MG. SULLA COMPOSIZIONE MINERALE DELL'OSSO. Pathologica, Genova, 1936, 28: 69-75. 38 refs. Abstracted in: Chem. Abstr., 1936, 30: 3880[6].

See:

396	809	1193	1231	1285
1971	2621	2704	2810	

CHEMISTRY, INORGANIC - PHOSPHORUS

see also METABOLISM, INORGANIC - PHOSPHORUS

378
Adams, C. O. CHEMICAL COMPOSITION OF TRANSVERSE METAPHYSEAL BANDS PRODUCED IN GROWING BONES BY PHOSPHORUS INGESTION. Proc. Soc. Exp. Biol., N. Y., 1938, 39: 351-354. 7 refs. Abstracted in: Biol. Abstr., Balt., 1939, 13: No. 467; Nutrit. Abstr., Aberdeen, 1938-39, 8: No. 4969. The bands of dense bone contain a normal ratio of P and Ca. The density is the result of growth arrest.

379
Antoniani, C. and Usuelli, F. SULLA COSTITUZIONE CHIMICA DEL FOSFATO CALICO DELLE OSSA. Profilassi, 1932, 5: 179-180.

380
Black, A. L., Kleiber, M., Smith, A. H. and Ralston, N. P. MOBILITY OF SKELETAL PHOSPHOROUS IN A MATURE DAIRY COW AS DETERMINED WITH RADIOACTIVE PHOSPHOROUS. Proc. Soc. Exp. Biol., N. Y., 1953, 82: 248-252. 16 refs. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 27652; Chem. Abstr., 1953, 47: 6010[b]; Nuclear Sc. Abstr., 1953, 7: No. 1364. The "labile" phosphorous pool in the skeleton of a mature dairy cow was measured by use of P^{32}. The pool contains about 1% of the total skeletal phosphorous, which represents a store 15 times as large as the circulating phosphorous pool of the plasma. While the "labile" phosphorous is distributed throughout the skeleton, its concentration in trabecular bone is 3 times that in cortical bone.

381
Bonner, J. F., Jr. INFLUENCE OF AGE ON UPTAKE OF RADIOACTIVE PHOSPHORUS BY THE SKELETON. IN: PHARMACOLOGY AND TOXICOLOGY OF URANIUM COMPOUNDS. (Voegtlin, C. and Hodge, H. C., eds.) New York, McGraw-Hill, 1953. (National Nuclear Energy series, Manhattan Project Technical Sect., Div. 6, v.1, pt. 4, p. 1970-1991). Abstracted in: Chem. Abstr., 1953, 47: 10704[a].

382
Fontaine, M. SUR LA RELATION EXISTANT CHEZ LES POISSONS MARINS ET POTAMOTOQUES ENTRE LA TENEUR EN PHOSPHORE INORGANIQUE DU SÉRUM ET L'OSSIFICATION DU SQUELETTE. C. rend. Acad. sc., 1932, 194: 395-396. 3 refs. Abstracted in: Chem. Abstr., 1932, 26: 4881.

383
Hodge, H. C., Bale, W. F. and LeFevre, M. L. MOLECULAR CONSTITUTION OF TOOTH AND BONE PHOSPHATES. J. Biol. Chem., 1937, 119: Proc., 49. An abstract. "Teeth, bones, commercial tricalcium phosphates, and calcium phosphates precipitated at pH 7, all have hydroxylapatite diffraction patterns before ignition. After ignition, more or less change occurs to β-$Ca_3P_2O_8$ patterns, depending on the Ca:P ratio. At pH 7, the Ca:P ratio depends more on mode of precipitation than on amounts of Ca and P added. From electrometric titrations, the precipitates are either $CaHPO_4$ or have the hydroxylapatite lattice."

CHEMISTRY, INORGANIC - PHOSPHORUS (Continued)

384
Karaila, E. ÜBER DEN PHOSPHORGEHALT DER MUSKELN UND DER KNOCHEN NORMALER UND BEI RACHITOGENISCHER DIÄT GEHALTENER KANINCHEN. Skand. Arch. Physiol., Berl., 1937, 77: 48-49. Abstracted in: Chem. Abstr., 1938, 32: 6301.

385
Kraijenhoff Sloot, W. J. A. T. and Kroon, D. B. ON THE PHOSPHORUS COMPOUNDS IN THE SKELETON AND IN THE SOFT PARTS OF CHICKEN EMBRYOS. Arch. néerl. physiol., 1942, 26: 239-249. 3 refs. Abstracted in: Chem. Abstr., 1944, 38: 59183.

386
McLean, F. C. THE ECONOMY OF PHOSPHORUS IN THE ANIMAL KINGDOM. IN: BIOLOGICAL ACTION OF THE VITAMINS; A SYMPOSIUM. (Evans, E. A., Jr., ed.) Chicago, The University of Chicago Press, 1942. p. 185-201. 13 refs.

387
Manery, J. F. and Bale, W. F. THE PENETRATION OF RADIOACTIVE SODIUM AND PHOSPHORUS INTO EXTRA- AND INTRACELLULAR PHASES OF TISSUES. Am. J. Physiol., 1941, 132: 215-231. 24 refs. The femur of the rat is one of the tissues studied.

388
Manly, M. L. and Levy, S. R. ADSORPTION STUDIES ON ENAMEL, DENTINE AND BONE. J. Am. Chem. Soc., 1939, 61: 2588-2590. 12 refs. Abstracted in: Chem. Abstr., 1940, 34: 1436.

389
Manly, M. L., Hodge, H. C. and Van Voorhis, S. N. DISTRIBUTION OF INGESTED PHOSPHORUS IN BONE AND TEETH OF A DOG, SHOWN BY RADIOACTIVE ISOTOPE. Proc. Soc. Exp. Biol., N. Y., 1940, 45: 70-72. 3 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1940-41, 10: No. 3590. "The uptake of radioactive phosphorus was greater in spongy than in dense diaphyseal bone when salts of the element were administered orally.... In dentine the amounts of radioactive phosphorus were constant for the various teeth, and of the same order as that present in dense diaphyseal bone. No more than traces of phosphorus were found in the enamel."

390
Monetti, G. IL FOSFORO ACIDOSOLUBILE DEL TESSUTO OSSEO. Boll. Soc. ital. biol. sper., 1941, 16: 725-726. 2 refs. Abstracted in: Chem. Abstr., 1946, 40: 61399.

391
Neuman, W. F. and Riley, R. F. THE UPTAKE OF RADIOACTIVE PHOSPHORUS BY THE CALCIFIED TISSUES OF NORMAL AND CHOLINE-DEFICIENT RATS. J. Biol. Chem., 1947, 168: 545-554. 13 refs. "There is an initial, rapid entrance of labeled phosphate into the bones following administration of a trace amount of the isotope. Most of this isotopic phosphate is temporarily 'fixed' in the bones by an ionic exchange between the fluids and the apatite crystals. The mechanism of this exchange is discussed.... Severe choline deficiency in the albino rat did not alter the uptake of isotopic phosphate by the femur to any marked degree. A mild deficiency showed no effect."

392
Percival, W. L., Findlay, D., Gross, J. and Leblond, C. P. AUTOGRAPHIC STUDIES OF THE BONY TISSUES WITH RADIOACTIVE PHOSPHORUS AND OF THE THYROID WITH RADIOACTIVE IODINE. Anat. Rec., 1947, 97: 424. An abstract.

393
Rogers, H. J., Weidmann, S. M. and Jones, H. G. STUDIES ON THE SKELETAL TISSUES. III. THE RATE OF EXCHANGE OF THE INORGANIC PHOSPHATE IN DIFFERENT BONES AND PARTS OF BONES IN VARIOUS SPECIES OF MAMMAL. Biochem. J., Lond., 1953, 54: 37-42. 22 refs. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 27033; Chem. Abstr., 1953, 47: 7066e. Rabbits, cats, rats and ferrets were injected with ^{32}P as a tracer. The rate of exchange of phosphate in the cortical bone of cats was found to be very much slower than in the same type of bone in rabbits and rats. This difference did not extend to the trabeculae of the cancellous metaphyseal bones. The distribution of the tracer within the femoral and tibial cortical bone of rabbits showed great heterogeneity. The significance of this heterogeneity is discussed.

394
Todd, W. R. THE REMOVAL OF INORGANIC PHOSPHORUS FROM PHOSPHATE SOLUTIONS BY RAT BONE. Arch. Biochem., N. Y., 1943, 1: 369-372. 5 refs. "When a phosphate buffer is added to minced rat bone there is a rapid decrease in the inorganic phosphate content of the buffer. Under the experimental conditions described this phenomenon cannot be due to enzymatic action. The possibility of an ionic interchange is discussed."

395
Zetterström, R. RENEWAL OF PHOSPHATE IN BONE MINERALS. I. RENEWAL RATE OF PHOSPHATE IN RELATION TO THE SOLUBILITY OF THE BONE MINERALS. Biochim. biophys. acta, Amst., 1952, 8: 283-293. 43 refs. "The inorganic part of bone tissue is composed of an unknown number of fractions with different solubility when acetate buffers and saturated inert ammonium sulphates are used as solvent systems. The most soluble fractions also have the most rapid rate of phosphate renewal; one fraction seems to be nearly in ionic equilibrium with orthophosphate in plasma. The significance of these observations has been discussed."

See:

6	7	264	346	351
354	387	1238	1944	1973
2169	2333	2681	2861	2919
2939	2948	2965		

CHEMISTRY, INORGANIC - SODIUM

see also METABOLISM, INORGANIC - SODIUM

396
Dallemagne, M. J. and Mélon, J. L'ÉTAT CHIMIQUE DU MAGNÉSIUM ET DU SODIUM DES SELS OSSEUX. Arch. internat. physiol., 1950, 58: 188-200. 18 refs. Abstracted in: Chem. Abstr., 1952, 46: 5163g. When mineralized the magnesium and sodium of bone salts were present as carbonate; when heated at 600° centigrade they were liberated; before heating they were fixed to the surface of the phosphate crystals.

397
Harrison, H. E. THE SODIUM CONTENT OF BONE AND OTHER CALCIFIED MATERIAL. J. Biol. Chem., 1937, 120: 457-462. 14 refs. The excess sodium of the bone in normal animals and those with various disorders of calcification is, in general, directly proportional to the calcium content, the ratio being 1 to 30 molecules. It is suggested that the sodium found in calcified material is part of an apatite complex similar to the sodium found in the naturally occurring fluorapatite.

CHEMISTRY, INORGANIC - SODIUM (Continued)

398
Hodge, H. C., Koss, W. F., Ginn, J. T., Falkenheim, M., Gavett, E., Fowler, R. C., Thomas, I., Bonner, J. F. and Dessauer, G. THE NATURE OF THE INSOLUBLE SODIUM OF BONE. THE ADSORPTION OF SODIUM AT FORTY DEGREES BY BONE, DENTIN, ENAMEL, AND HYDROXYAPATITE AS SHOWN BY THE RADIOACTIVE ISOTOPE. J. Biol. Chem., 1943, 148: 321-331. 20 refs. Abstracted in: Biol. Abstr., Balt., 1943, 17: No. 23946; Chem. Abstr., 1943, 37: 4082^{6}.

399
Koss, W. F. and Ginn, J. T. DISTRIBUTION OF SODIUM IN THE TEETH AND BONES OF DOGS AS SHOWN BY THE RADIOACTIVE ISOTOPE. J. Dent. Res., 1941, 20: 465-470. 10 refs. Abstracted in: Biol. Abstr., Balt., 1942, 16: No. 14732; Chem. Abstr., 1942, 36: 1092^{9}.

400
Stoll, W. R. NATURE OF SODIUM IN BONE. Fed. Proc., Balt., 1954, 13: 306. An abstract.

See:

387

CHEMISTRY, INORGANIC - TRACE ELEMENTS

see TRACE ELEMENTS and subdivisions

CHEMISTRY, INORGANIC - VARIATIONS WITH AGE AND KINDS OF BONE

see CHEMISTRY - VARIATIONS WITH AGE AND KINDS OF BONE

CHEMISTRY, ORGANIC

see also CHEMISTRY; METABOLISM, ORGANIC

401
Dawson, I. M. X-RAY DIFFRACTION PATTERN OF BONE: EVIDENCE OF REFLEXIONS DUE TO THE ORGANIC CONSTITUENT. Nature, Lond., 1946, 157: 660-661. 8 refs. "A comparison was made of the diffraction patterns given by intact rachitic bone, trypsin digested bone and decalcified bone."

402
Eastoe, J. E. and Eastoe, B. THE ORGANIC CONSTITUENTS OF MAMMALIAN COMPACT BONE. Biochem. J., Lond., 1954, 57: 453-459. 36 refs.

403
*Hori, S., Nagao, T. and Niwa, K. CYSTINE AND TRYPTOPHAN CONTENTS OF OSSEIN. I. CYSTINE CONTENT. Kagaku, 1944, 14: 255. Abstracted in: Chem. Abstr., 1950, 44: 10750^{d}.

404
Inoue, T. BEITRÄGE ZUR KENNTNIS DER ORGANISCHEN BESTANDTEILE DES KNOCHENS. Tôhoku J. Exp. M., 1935, 26: 433-440. Abstracted in: Chem. Abstr., 1935, 29: 8081^{2}; Nutrit. Abstr., Aberdeen, 1935-36, 5: No. 2846.

405
Ogino, T. [HISTOLOGICAL STUDIES ON THE GLYCOGEN CONTENT OF THE OSTEOCHONDRAL JUNCTION OF RAT RIBS] Sei-i-kai M. J., 1941, 60: 941-957. pl. English abstract, p. 7-8. Abstracted in: Chem. Abstr., 1942, 36: 540^{2}.

406
Ohno, K. and Nanba, T. EINFLUSS DER SUBCUTANEN INJEKTION DES OSSOPHYTS AUF DEN HEILUNGSVORGANG DER KNOCHENFRAKTUR. Kumamoto M. J., 1934, 10: 401-402.

407
Preto Parvis, V. GLICOGENO E OSSIFICAZIONE IN EMBRIONI DI RATTO. Arch. Ist. biochim. ital., 1938, 10: 281-288. pl. 12 refs. Abstracted in: Chem. Abstr., 1939, 33: 2192^{9}. In rat embryos histochemical studies were made of the distribution of glycogen in ossifying tissues.

408
Rogers, H. J. OBSERVATIONS ON THE ORGANIC MATRIX OF BONE. Biochem. J., Lond., 1949, 45: Proc., 24-25. Abstracted in: Excerpta med., Sect. 2, 1950, 3: No. 5100.

See:

77 80 703 846 1293 2390 2882

CHEMISTRY, ORGANIC - CITRIC ACID

409
Beaulieu, M. M. and Dallemagne, M. J. LA CONSTANCE DU TAUX DES CITRATES DE L'OS. Arch. internat. physiol., Liége, 1951, 59: 183-190. 13 refs. Abstracted in: Chem. Abstr., 1953, 47: 2878^{i}; Ber. ges. Physiol., 1952-53, 151: 294.

410
Beaulieu, M. M. and Herve, A. RAYONS X ET ACIDE CITRIQUE DE L'OS. Bull. Soc. chim. biol., Par., 1953, 35: 491-493. Abstracted in: Chem. Abstr., 1954, 48: 755^{d}.

411
*Buffa, P. SULLA PRESENZA DI ACIDO CITRICO NELLE STRUTTURE ANIMALI CALCIFICATE. Atti Accad. naz. Lincei, Rendic., Class. sc. fis., 1952, 13: 417-421. Abstracted in: Chem. Abstr., 1953, 47: 5518^{d}.

412
Cartier, P. LES CONSTITUANTS MINÉRAUX DES TISSUS CALCIFIÉS. V. LES ANIONS ORGANIQUES DE L'OS. Bull. Soc. chim. biol., Par., 1951, 33: 161-169. 8 refs. The long bones of rabbits and rats of various ages and of sheep embryos at different stages of development were analyzed for calcium, phosphorus and nitrogen content and for citric and lactic acids. It was found that cartilage is rich in lactic acid and poor in citric acid and that the citric acid level in bone tissue is constant while that of lactic acid, high in the early stages of ossification, decreases constantly until it reaches the relatively constant level of definitive bone.

413
CITRIC ACID IN BONE. (Editorial). J. Am. M. Ass., 1942, 120: 208. 2 refs. A short survey with particular reference to Dickens' work.

414
Day, H. G. THE RELATION OF PHYTIN TO THE CALCIFYING ACTION OF CITRATES. J. Nutrit., 1940, 20: 157-168. 23 refs. Abstracted in: Biol. Abstr., Balt., 1941, 15: No. 278. By determinations of bone ash of young rats it was shown that "a beneficial effect of citrates in ricketogenic diets does not occur unless there is a high Ca:P ratio and appreciable quantities of phytin, or perhaps other phosphorus containing complexes of low biological availability."

CHEMISTRY, ORGANIC - CITRIC ACID (Continued)

415
Dickens, F. THE CITRIC ACID CONTENT OF ANIMAL TISSUES, WITH REFERENCE TO ITS OCCURRENCE IN BONE AND TUMOUR. Biochem. J., Lond., 1941, 35: 1011-1023. 30 refs. Abstracted in: Biol. Abstr., Balt., 1942, 16: No. 12451; Chem. Abstr., 1942, 36: 4180[5]. The citric acid content of solid tissues of several species of animals was determined. It was found that the hard substance of bone contains the greatest part (70%) of the total body content. The marrow and cartilage contain much less. Variations in the concentration of citric acid in bone were reported, which would seem to indicate that the skeleton acts as a reservoir from which citric acid can be mobilized.

416
Dixon, T. F. CITRIC ACID AND CALCIUM METABOLISM. J. Bone Surg., 1951, 33B: 268-271. 26 refs. A short review.

417
Dixon, T. F. and Perkins, H. R. CITRIC ACID AND BONE METABOLISM. Biochem. J., Lond., 1952, 52: 260-265. 22 refs. Abstracted in: Chem. Abstr., 1953, 47: 732[f]; Biol. Abstr., Balt., 1953, 27: No. 9661. "It appears that all the parts of bone examined have, by comparison with other tissues, e.g., kidney or liver, citrogenase and aconitase activities much greater than those of isocitric dehydrogenase. The mechanism for the production of a local high concentration of citric acid therefore exists in bone. ... Increasing concentrations of citrate inhibit the calcification of hypertrophic rat cartilage in vitro."

418
Fantl, P. and Rome, N. CALCIUM AND CITRIC ACID METABOLISM IN BONE DISEASES. Proc. R. Australas. Coll. Physicians, 1947, 2: 52-55. 15 refs.

419
Hathaway, M. L. and Meyer, F. L. CITRIC ACID AND ITS SALTS AS CALCIFYING AGENTS IN RATS. J. Nutrit., 1939, 17: 419-427. 12 refs. Abstracted in: Chem. Abstr., 1939, 33: 6398[1]; Biol. Abstr., Balt., 1939, 13: No. 10945.

420
Hennig, W., Schmahl, N. G. and Theopold, W. ÜBER CALCIUM-CITRONENSÄURE-KOMPLEXE. Biochem. Zschr., 1951, 321: 401-409. 29 refs. Abstracted in: Excerpta med., Sect. 2, 1952, 5: No. 1582; Chem. Abstr., 1951, 45: 7302[i].

421
Klinke, K. PROBLEME DES CALCIUMSTOFFWECHSELS UND DER RACHITIS. Mschr. Kinderh., 1950, 98: 113-115. Abstracted in: Chem. Abstr., 1950, 44: 7399[a].

422
Lecoq, R. ACTION DE L'ACIDE CITRIQUE SUR LES DEUX VARIÉTÉS DE RACHITISME EXPÉRIMENTAL. C. rend. Soc. biol., 1949, 143: 452-454. 6 refs. Abstracted in: Chem. Abstr., 1950, 44: 2611[c]; Biol. Abstr., Balt., 1951, 25: No. 623. Young white rats with two kinds of experimental rickets were treated with citric acid. A distinct recalcification of bone lesions was observed in alkalotic rickets, but in acidotic ultraviolet-resistant rickets no effect was noted.

423
Leonards, J. R. and Free, A. H. THE CITRATE CONTENT OF THE SKELETON AS INFLUENCED BY PROLONGED FEEDING OF ACID-PRODUCING AND BASE-PRODUCING SALT. J. Biol. Chem., 1944, 155: 503-506. 11 refs. Abstracted in: Biol. Abstr., Balt., 1945, 19: No. 2403; Chem. Abstr., 1945, 39: 3317. The citrate content of the skeleton was not altered by prolonged feeding of sodium citrate or ammonium fluid.

424
Pin, P. and Delmas, A. RÉSERVES MINÉRALES OSSEUSES DU FOETUS HUMAIN. TENEUR EN CITRATES. C. rend. Ass. anat., 1952, 38.meet., No. 69, 822-824. 3 refs. Determinations were made of the distribution of bone citrates in the human fetus. The relatively high content was greater in the diaphysis than in the epiphysis.

425
Rominger, E. CITRIC ACID AND RICKETS. Acta paediat., Upps., 1948, 36: 336-341. 14 refs. "Vitamin D and citric acid prevent and cure rickets both probably by formation of Ca complex salts which no longer have cationic properties."

426
Schubert, J. AN EXPERIMENTAL STUDY OF THE EFFECT OF ZIRCONIUM AND SODIUM CITRATE TREATMENT ON THE METABOLISM OF PLUTONIUM AND RADIOYTTRIUM. J. Laborat. Clin. M., 1949, 34: 313-325. 8 refs. Abstracted in: Biol. Abstr., Balt., 1949, 23: No. 20673.

427
Schubert, J. and White, M. R. EFFECT OF CITRATE SALTS AND OTHER CHEMICAL FACTORS ON THE DISTRIBUTION AND EXCRETION OF BERYLLIUM. J. Laborat. Clin. M., 1950, 35: 854-864. 20 refs. Abstracted in: Excerpta med., Sect. 2, 1951, 4: No. 2183.

428
Shohl, A. T. THE EFFECT OF THE ACID-BASE CONTENT OF THE DIET UPON THE PRODUCTION AND CURE OF RICKETS WITH SPECIAL REFERENCE TO CITRATES. J. Nutrit., 1937, 14: 69-83. 22 refs. Young albino rats were fed diets of eight different calcium-phosphorus ratios. Ammonium chloride-ammonium carbonate mixtures added to non-rachitogenic diets rendered them rachitogenic. Citric acid-sodium citrate mixtures added to rachitogenic diets rendered them non-rachitogenic, in certain conditions. Of the organic acids tested only the citrates and tartrates were effective in rickets prevention.

429
Steenbock, H. and Bellin, S. A. VITAMIN D AND TISSUE CITRATE. J. Biol. Chem., 1953, 205: 985-991. 25 refs. "The citrate content of blood, bone, kidney, heart, and the small intestine of rats on normal or low-P rachitogenic rations was increased by physiological doses of vitamin D." It appears that the increase in urinary citrate is a reflection of its increased accumulation in certain tissues."

430
Taüfel, K. and Krusen, F. DIE CITRONENSÄURE ALS KONSTITUIERENDER BAUSTEIN DER KNOCHEN UND ZÄHNE. Biochem. Zschr., 1952, 322: 368-370. 6 refs. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 16397; Chem. Abstr., 1952, 46: 7196[b].

431
Thunberg, T. OCCURRENCE AND SIGNIFICANCE OF CITRIC ACID IN THE ANIMAL ORGANISM. Physiol. Rev., 1953, 33: 1-12. 72 refs. A general review. For bone, see particularly p. 7. Abstracted in: Chem. Abstr., 1953, 47: 4987[f].

432
Thunberg, T. SOME INFORMATION ON THE CITRIC ACID CONTENT OF BONE SUBSTANCE. Acta physiol. scand., 1948, 15: 38-46. 18 refs. Abstracted in: Excerpta med., Sect. 2, 1948, 1: No. 5008; Biol. Abstr., Balt., 1949, 23: No. 23096. "The citrate content was highest in compact bone and least in spongy bone.

CHEMISTRY, ORGANIC - CITRIC ACID (Continued)

Human bone contained 0.9 to 2 per cent per gram of dried fat-free substance; those of a bird (Larus ridibundus) 0.60 to 2.7 per cent; and the spines of cod, mackerel and herring, 2, 1.6 and 4.3 per cent respectively. The bones of frogs that had been kept in the laboratory for a year contained only about 0.3 per cent." - Excerpta med.

See:

255 256 831 1813 2839
2864 2865 2866 2876 2951

CHEMISTRY, ORGANIC - COLLAGEN AND RETICULIN

see COLLAGEN AND RETICULIN

CHEMISTRY, ORGANIC - ENZYMES

see ENZYME RELATIONSHIPS and subdivisions

CHEMISTRY, ORGANIC - GLYCOPROTEINS AND MUCOPOLYSACCHARIDES

see GLYCOPROTEINS AND MUCOPOLYSACCHARIDES

CHEMISTRY, ORGANIC - LIPOIDS

433
Claassen, V., Vogels, R. J. and Wöstmann, B. S. J. AN INDEPENDANT SYNTHESIS OF PHOSPHOLIPIDS IN THE FEMUR AND TIBIA OF WHITE RATS. Nature, Lond., 1952, 169: 191-192. 3 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1952, 22: No. 877. Experiments performed in vivo in the rat and reproduced in vitro with bone fragments from femur and tibia show that an independent synthesis of phospholipids takes place in bone marrow.

434
Nagy, I., Savay, G. and Csillik, B. A PORCSEJTEK LIPOIDTARTALMA ÉS A CSONTOSODÁS KÖZÖTTI ÖSSZEFÜGGESRÖL. [CORRELATION BETWEEN THE LIPOID CONTENT OF CARTILAGE CELLS AND OSSIFICATION] Kísérletes orvostud., 1951, 3: 267-270. 10 refs. German translation in: Acta morph. hung., 1953, 3: 483-487.

435
Nagy, I., Savay, G., Berek, L. and Csillik, B. VERÄNDERUNGEN DES FETTGEHALTES IN DEN KNORPELZELLEN WÄHREND DES EMBRYONALEN LEBENS. Acta morph. hung., 1951, 1: 307-312. 12 refs.

436
Newlin, H. E. and McCay, C. M. THE RELATION BETWEEN THE BONE LIPIDS OF RABBITS AND THE DIET. J. Biol. Chem., 1941, 140: Proc. 97-98. An abstract.

437
Nicolosi, G. and Petrina, N. REPERTI ISTOCHIMICI LIPOIDEI NEL CALLO OSSEO SPERIMENTALE. Med. sper., Tor., 1948, 19: 265-288. 49 refs. Abstracted in: Excerpta med., Sect. 5, 1949, 2: No. 3410.

438
Nordfeldt, S. THE INFLUENCE OF PHOSPHORUS, CALCIUM AND VITAMIN D_3 UPON THE FAT CONTENT OF THE SKELETON IN GROWING PIGS. J. Nutrit., 1946, 31: 565-572. 13 refs. Abstracted in: Biol. Abstr., Balt., 1946, 20: No. 16959; Chem. Abstr., 1946, 40: 5114^6.

439
Zimmermann, G. CSONTOK ZSÍRTALANÍTÁSA. [EXTRACTION OF FAT FROM BONES] Állatorv. lap., 1935, 58: 298-299. 7 refs.

See:

93 143 2660

CHEMISTRY, ORGANIC - VARIATIONS WITH AGE AND KINDS OF BONE

see CHEMISTRY - VARIATIONS WITH AGE AND KINDS OF BONE

CHONDROGENESIS

440
Baisset, A., Douste-Blazy, L., Montastruc, P., Planel, H. and Virenque, J. CONTRIBUTION À L'ÉTUDE EXPÉRIMENTALE DE L'ACTION DES HORMONES SUR LA CROISSANCE DES OS LONGS. Sem. hôp., Paris, 1953, 29: 63-69. 32 refs. Abstracted in: Internat. Abstr. Surg., 1953, 97: 286. Experiments on male white rats indicated that the development of the epiphyseal cartilage is dependent upon a balance between the sex hormones and the anterior pituitary growth hormone. The article contains a review of the literature.

441
Baume, L. J. and Becks, H. THE TOPOGENESIS OF THE MANDIBULAR PERMANENT MOLARS; A ROENTGENOGRAPHIC AND HISTOLOGIC STUDY IN RHESUS MACAQUE. Oral Surg., 1953, 6: 850-868. 40 refs. In this study of the mandibles of a series of rhesus monkeys it was found that the ramus grows by chondrogenesis and endochondral ossification at the condylar head, which processes in turn induce membranous bone formation chiefly at the posterior border. Growth of the ramus is in a posterolateral direction. The development of the germ is controlled by the differential growth of the odontogenic epithelium at distinct areas. The correlation in time of the ramal and dental development is noted. The study is preceded by a review of the literature.

442
Berezkina, L. F. O VOZMOZHNOSTI INDUKTSII KHRIASHCHEOBRAZOVANIIA IN VITRO. [POSSIBILITY OF INDUCED FORMATION OF CARTILAGE IN VITRO] Izv. Akad. nauk, Moskva, ser. biol., 1943, No. 2, 67-73. 11 refs. English summary. Small pieces of hatching chick retina were added to pure cultures of fibrocites from chick embryo heart and cultivated for 28 days. All elements except the pigment epithelium degenerated and an enhanced formation of fibres took place in the connective tissue. There was no sign of formation of cartilage or bone. Since there is an increased formation of fibres with the use of cartilage or fibrous connective tissue as well as with retina, it is concluded that neither retina nor cartilage can induce cartilage formation in vitro in tissues not endowed with chondrogenic potency.

443
Borghese, E. INDAGINE ISTOCHIMICHE SULLA "SFERULA ACIDOFILA" DELLE CELLULE CARTILAGINEE IPERTROFICHE. Boll. Soc. ital. biol. sper., 1953, 29: 292-293. 7 refs. Abstracted in: Chem. Abstr., 1954, 48: 2212^e.

444
Clark, E. R. and Clark, E. L. MICROSCOPIC OBSERVATIONS ON NEW FORMATION OF CARTILAGE AND BONE IN THE LIVING MAMMAL. Am. J. Anat., 1942, 70: 167-200. 30 refs. Abstracted in: Biol. Abstr., Balt., 1942, 16: No. 16424.

445
Dodds, G. S. ROW FORMATION AND OTHER TYPES OF ARRANGEMENT OF CARTILAGE CELLS IN ENDOCHONDRAL OSSIFICATION. Anat. Rec., 1930, 46: 385-399. 2 pl. Abstracted in: Biol. Abstr., Balt., 1931, 5: No. 25546. These studies were made upon developing bones of dog fetuses and young puppies but comparisons were made constantly with material from cat, pig, and man.

CHONDROGENESIS (Continued)

446
Elliott, H. C. STUDIES ON ARTICULAR CARTILAGE. I. GROWTH MECHANISMS. Am. J. Anat., 1936, 58: 127-145. 2 pl. Approx. 25 refs. The study "deals primarily with the mechanism by which articular cartilage compensates for normal wear due to movement in the joint; as a necessary preliminary it also deals with growth in immature subjects - that is, developmental as distinct from maintenance growth."

447
Fell, H. B. CHONDROGENESIS IN CULTURES OF ENDOSTEUM. Proc. R. Soc., Ser. B, Biol. Sc., Lond., 1933, 112: 417-427. 3 pl. 8 refs. Abstracted in: Biol. Abstr., Balt., 1936, 10: No. 6939.

448
Glücksmann, A. STUDIES ON BONE MECHANICS IN VITRO. II. THE ROLE OF TENSION AND PRESSURE IN CHONDROGENESIS. Anat. Rec., 1939, 73: 39-54. 2 pl. 6 refs. Abstracted in: Biol. Abstr., Balt., 1939, 13: No. 4387.

449
Gromtseva, K. E. GISTOLOGICKESKIE ISSLEDOVANIIA KHRIASHCHA. [HISTOLOGICAL STUDY OF CARTILAGE] Izv. Akad. nauk. SSSR, ser. biol., Moskva, 1950, No. 4, 100-107. 6 refs. Changes in the cell elements of hyaline cartilage were studied in man during embryonic and post-natal development.

450
Ham, A. W. THE VARIABILITY OF THE PLANES OF CELL DIVISION IN THE CARTILAGE COLUMNS OF THE GROWING EPIPHYSEAL PLATE. Anat. Rec., 1931, 51: 125-133. pl. 2 refs. Abstracted in: Biol. Abstr., Balt., 1933, 7: No. 11927.

451
Krompecher, S. DIE ENTSTEHUNGSBEDINGUNGEN DES FASERKNORPELS. Anat. Anz., 1938, 85: 229-236.

452
Mattick. ZUR BIOLOGIE DES KNORPELS. Anat. Anz., 1951, 98: Suppl., 78-85. 2 refs. Abstracted in: Excerpta med., Sect. 1, 1953, 7: No. 2132.

453
Nasonov, N. V. OBRAZOVANIE KHRIASHCHA IN VITRO Y AKSOLOTLIA. [THE FORMATION OF CARTILAGE IN VITRO IN THE AXOLOTL] C. rend. Acad. sc. SSSR, 1934, 3: 202-207. 3 refs. In Russian and English. Connective tissue from sides of anterior part of body of 1-year-old axolotl was placed in axolotl blood plasma and an extract of axolotl cartilages from tarsus and epiphyses from fibula, tibia and femur containing a substance called chondrogene was added. Moving cells, surrounded by a more compact basic substance were observed from beginning of growth of cultures. This substance joined the cells and prevented them from spreading. The basic substance became more compact and a tissue possessing characteristics of hyaline cartilage was formed.

454
*Nauch, E. T. VERSUCHE ZUR AUFKLÄRUNG DER ENSTEHUNGSBEDINGUNGEN FÜR KNORPELGEWEBE. Verh. Anat. Ges., 1939, 47: 297-301.

455
Oinuma, S. ZYTOLOGISCHE UNTERSUCHUNGEN DER HYALINKNORPELZELLEN DES MENSCHEN. Okajimas fol. anat., 1939, 18: 307-336. pl. 68 refs.

456
Prader, A. DIE ENTWICKLUNG DER ZWISCHENWIRBELSCHEIBE BEIM MENSCHLICHEN KEIMLING. Acta anat., Basel, 1947, 3: 115-152. 24 refs. Abstracted in: Biol. Abstr., Balt., 1948, 22: No. 18553. The development of the intervertebral disk is studied in serial sections of the vertebral column of the human embryo, fetus and newborn infant.

457
Preto Parvis, V. and Roncoroni, G. CONTRIBUTO MORFOLOGICO E ISTOCHIMICO ALLO STUDIO DELLA CONDROGENESI. Atti. Soc. ital. anat., Pavia, 1951, 13.meet., 263-266. In rats of different ages morphological and histochemical studies were made of the processes of chondrogenesis.

458
Pritchard, J. J. A CYTOLOGICAL AND HISTOCHEMICAL STUDY OF BONE AND CARTILAGE FORMATION IN THE RAT. J. Anat., Lond., 1952, 86: 259-277. 4 pl. 42 refs. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 166601; Brit. Abstr., Sect. AIII, 1953, p. 3.

459
Sensenig, E. C. NOTE ON THE FORMATION OF CARTILAGE. Anat. Rec., 1948, 100: 615-619. pl. 4 refs. Abstracted in: Excerpta med., Sect. 1, 1949, 3: No. 589; Biol. Abstr., Balt., 1949, 23: No. 1143.

460
Shands, A. R., Jr. THE REGENERATION OF HYALINE CARTILAGE IN JOINTS; AN EXPERIMENTAL STUDY. Arch. Surg., 1931, 22: 137-178. 25 refs.

461
Sheehan, J. F. A CYTOLOGICAL STUDY OF THE CARTILAGE CELLS OF DEVELOPING LONG BONES OF THE RAT, WITH SPECIAL REFERENCE TO THE GOLGI APARATUS, MITOCHONDRIA, NEUTRAL-RED BODIES AND LIPID INCLUSIONS. J. Morph., 1948, 82: 151-199. 5 pl. Approx. 65 refs. Abstracted in: Excerpta med., Sect. 1, 1949, 3: No. 682.

462
Terada, E. A HISTOLOGIC STUDY OF THE CARTILAGE OF THE LOWER END OF HUMAN FEMUR IN EVERY FETAL STAGE. Jap. J. Obst., 1934, 17: 186-193. 2 pl. 18 refs. Abstracted in: Biol. Abstr., Balt., 1936, 10: No. 4471.

463
Wagenfeld, M. ÜBER DIE NEUBILDUNG VON KNORPELZELLEN. Virchow's Arch., 1952, 321: 535-536. 3 refs. Abstracted in: Excerpta med., Sect. 5, 1953, 6: No. 984.

See:

492 1023 1085 1281 2416

CIRCULATORY INFLUENCE

464
Amprino, R. QUELQUES DONÉES SUR L'HISTOPHYSIOLOGIE DU TISSU OSSEUX. C. rend. Ass. anat., 1950, 37: 11-19. A study of the circulation of the intra-osseous fluids in compact and spongy bone and their passage through the cement substance. The role of the fluids in calcification is explained.

465
Anseroff, N. J. DIE ARTERIEN DER LANGEN KNOCHEN DES MENSCHEN. Zschr. Anat. Entw. 1934, 103: 793-812. 59 refs.

CIRCULATORY INFLUENCE (Continued)

466
*Anseroff, N. J. DIE ARTERIEN DES CHLÜSSELBEINS. Zschr. Anat. Entw., 1936, 106: 271-275. Abstracted in: Biol. Abstr., Balt., 1937, 11: No. 14729.

467
Anseroff, N. J. DIE ARTERIEN DES SKELETS DER HAND UND DES FUSSES DES MENSCHEN. Zschr. Anat. Entw., 1936, 106: 193-208. 4 refs.

468
Benassi, E. LO SVILUPPO E TROFISMO DELLO SCHELETRO DEGLI ARTI IN RAPPORTO ALLA ALLACCIATURA DEI VASI PRINCIPALI. Arch. ital. chir., 1931, 28: 49-68. 10 refs. Abstracted in: Biol. Abstr., 1932, 6: No. 17300.

469
Benda, R. and Debray, C. MODIFICATIONS LOCALES CONSÉCUTIVES À DES INJECTIONS INTRAMÉDULLAIRES OSSEUSES DE SALICYLATE DE SOUDE EN SOLUTION CONCENTRÉE. C. rend. Soc. biol., 1939, 130: 141-143. Abstracted in: Biol. Abstr., Balt., 1941, 15: No. 4277.

470
Bentzik, M. and Nagy, S. CONTRIBUTION TO THE BLOOD SUPPLY OF TUBULAR BONES IN EXPERIMENTAL ANIMALS. Acta morphol., Budap., 1951, 1: 262. The periosteal circulation of dogs, cats and rabbits was studied and found to be supplied by strong branches of the main artery of the extremity; the largest periosteal artery is a branch of the arteris femoralis proximalis. Ligature of the periosteal artery induced hypoxemia in the bone marrow with resulting erythrocytosis in the medullar veins and peripheral circulation.

471
Bich, A. STUDIO SPERIMENTALE SULL'INFLUENZA DELLA LEGATURA DEI VASI PROFONDI SULLA FORMAZIONE DEL CALLO. Arch. ital. chir., 1931, 30: 449-467. 36 refs.

472
Blair, H. C. THE ALTERNATION OF BLOOD SUPPLY AS A CAUSE FOR NORMAL CALCIFICATION OF BONE. Surg. Gyn. Obst., 1938, 67: 413-423. 26 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1938-39, 8: No. 4968. "A theory that alternating ischemia and hyperemia maintain normal calcification of bone and aid in the healing of fractures is presented."

473
BLOOD-FLOW IN BONE. Lancet, Lond., 1947, 1: 416. Abstracted in: Excerpta med., Sect. 2, 1948, 1: No. 540.

474
Bruno, G. IL TESSUTO OSSEO. Rass. clin. sc., 1950, 26: 8-11. Translation in: Resenha clin. cient., S. Paulo, 1951, 20: 43-46. Abstracted in: Excerpta med., Sect. 1, 1951, 5: No. 371. From a review of the literature and discussion of the histology and physiology of bone tissue, it is concluded that the constant processes of resorption and reconstruction of bone lamellae and the Haversian systems are closely related to vascular modifications; bone resistance to stress is in direct proportion to bone mineralization.

475
Burdeaux, B. D., Jr. and Hutchison, W. J. ETIOLOGY OF TRAUMATIC OSTEOPOROSIS. J. Bone Surg., 1953, 35A: 479-488. 17 refs. Abstracted in: Excerpta med., Sect. 9, 1954, 8: No. 612.

476
Cole Rous, M. CALCIFICATION, OSSIFICATION AND DECALCIFICATION. Clin. Proc., Cape Town, 1942, 1: 257-262. 50 refs. "The view that bone formation depends entirely upon the specific action of the osteoblasts can no longer be logically held in the light of evidence which has accumulated. There is general agreement amongst modern radiologists and pathologists that sclerosis of bone indicates a reduction, and bone atrophy an increase, of blood supply."

477
Coolbaugh, C. C. EFFECTS OF REDUCED BLOOD SUPPLY ON BONE. Am. J. Physiol., 1952, 169: 26-33. 10 refs. Abstracted in: Excerpta med., Sect. 9, 1953, 7: No. 8310. A report on the changes in physical properties of bone produced by reduction in blood supply.

478
Coppo, M. STUDI SULLA COMPOSIZIONE MINERALE DELLE OSSA. III. AZIONE DI PROCESSI SUPPURATIVI, DELLA STASI E DELLA NEVRECTOMIA (RICERCHE SPERIMENTALI). Pathologica, Genova, 1935, 27: 294-310.

479
Coppo, M. STUDI SULLA COMPOSIZIONE MINERALE DELLE OSSA. IV. AZIONE DELL'IMMOBILIZZAZIONE E DELLA ISCHEMIA. RICERCHE SPERIMENTALI. Fisiol. & med., Roma, 1935, 6: 249-258. 4 refs.

480
Del Bello, N. IL BLOCCO NOVOCAINICO NEI SUOI EFFETTI, LOCALE ED A DISTANZA, SUL PROCESSO DI GUARIGIONE DELLE FRATTURE SPERIMENTALI. Ricer. pat. sper., 1947, 35: 53-76. 73 refs. Abstracted in: Chem. Abstr., 1950, 44: 9551^{b}.

481
De Lorimier, A. A. REFLEX HYPEREMIC DEOSSIFICATIONS. Bull. Hosp. Joint Dis., N. Y., 1951, 12: 22-37. 17 refs. This type of deossification was found in 239 out of 350 cases selected from cross-files identified as osteoporosis, infectious arthritis, fractures, amputations, transverse myelitis, peripheral nerve injuries, tabes dorsalis and various neoplasms. Observations are discussed.

482
De Lorimier, A. A., Minear, W. L. and Boyd, H. B. REFLEX HYPEREMIC DEOSSIFICATIONS REGIONAL TO JOINTS OF THE EXTREMITIES. Radiology, 1946, 46: 227-236. 27 refs. Discussion: p. 236.

483
De Marneffe, R. À PROPOS DE LA VASCULARIZATION DES OS LONGS. Rev. chir. orthop., Par., 1952, 38: 64-69. This description of blood circulation in the long bones stresses the importance of the special vein systems and notes the effects of faulty circulation. Suppression of the periosteal blood supply alters the structure of compact diaphyseal bone; simultaneous suppression of the medullary blood supply causes the lesions of osteitis fibrosa.

484
De Marneffe, R. LES CONNAISSANCES ACTUELLES DE LA VASCULARISATION DES OS ET LEUR INCIDENCE SUR LA PATHOLOGIE DE CE TISSU. Rev. rhumat., Par., 1953, 20: 113-119. Abstracted in: Excerpta med., Sect. 1, 1954, 8: No. 242. "... A brief review of the vascularization of bone and the degree of participation of the medullary and periosteal systems. Emphasis is laid on the importance of these anatomical facts in physiological conditions of blood circulation

CIRCULATORY INFLUENCE (Continued)

in bone and in pathological conditions, such as: aseptic necrosis of the femur head, luxation of the hip, delayed union of fractures, osteomyelitis, pseudo-arthrosis, callus formation and osteo-chondritis. This importance is increased by the possibilities of modern vascular therapeutics."

485
De Marneffe, R. RECHERCHES MORPHOLOGIQUES ET EXPÉRIMENTALES SUR LA VASCULARISATION OSSEUSE. Acta chir. belg., 1951, 50: 469-488; 568-599 and 681-704. 7 pl. 101 refs.

486
De Marneffe, R. LES VAISSEAUX DES OS. In: Lacroix, P. L'OS ET LES MECANISMES DE SA FORMATION; ETUDE MORPHOLOGIQUE. J. physiol., Par., 1951, 43: 394-399. A summary of research done on the vascularization of the long bones of the rat, guinea pig and rabbit with limited application to human anatomy.

487
Dias-Amado, L. L'IRRIGATION DE LA MÉTAPHYSE ET DE LA DIAPHYSE DES OS LONGS. Arch. portug. sc. biol., 1950-1951, 10: Suppl., 99-101.

488
Dickinson, P. H. VENOUS STASIS AND BONE GROWTH. Exp. M. & S., Basel, 1953, 11: 49-53. 12 refs. Venous stasis was produced surgically in puppies and studied with oscillometer and thermocouple readings, teleoroentgenograms and venograms. Results indicated that venous stasis does not produce increased bone growth.

489
Ducuing, J., Marquès, P., Baux, R., Paillé, J. and Voisin, R. PHYSIOLOGIE DE LA CIRCULATION OSSEUSE. J. radiol. électr., 1951, 32: 189-196. 17 refs.

490
Fedorov, I. I. DER DOMINANTE MECHANISMUS IN DER GENESE DER ANDERUNGEN DES KALZIUM- UND PHOSPHORSPIEGELS IM BLUT NACH EXPERIMENTELLEN KNOCHENFRAKTUREN. Bull. biol. méd. exp. URSS, 1940, 9: 376-379.

491
Foster, L. N., Kelly, R. P., Jr. and Watts, W. M., Jr. EXPERIMENTAL INFARCTION OF BONE AND BONE MARROW. SEQUELAE OF SEVERANCE OF THE NUTRIENT ARTERY AND STRIPPING OF PERIOSTEUM. J. Bone Surg., 1951, 33A: 396-406. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 28008.

492
Giuliani, G. M. L'INFLUENZA DELLA VASCOLARIZAZIONE NELL'OSTEOGENESI CONNETTIVALE E NELLA FORMAZIONE DI CARTILAGINE CONDROGENESI; RICERCHE EXPERIMENTALI. Arch. ital. chir., 1934, 38: 645-686. 35 refs.

493
Graziadei, P. VARIAZIONI POLARIMETRICHE NEL SIERO DI SANGUE DEI FRATTURATI. Sperimentale, 1948-1949, 99: 332-335.

494
Guerrisi, A. SULL'INFLUENZA DELLA LEGATURA DEI VASI VENOSI NELLA RIGENERAZIONE OSSEA. Ann. ital. chir., 1934, 13: 1388-1402. 19 refs.

495
Gukov, P. V. O DVIZHENII ZHIDKOSTI V PERIVASKULIARNYKH I PERIKAPILLIARNYKH PROSTRANSTVAKH KOSTI. [MOVEMENT OF FLUID IN THE PERICAPILLARY AND PERIVASCULAR SPACES OF THE BONES] Arch. sc. biol., Moskva, 1936, 44: 117-130. 40 refs. English summary.

496
Harris, H. A. THE VASCULAR SUPPLY OF BONE, WITH SPECIAL REFERENCE TO THE EPIPHYSIAL CARTILAGE. J. Anat., Lond., 1929-1930, 64: 3-4. 2 pl. 2 refs.

497
Hintzsche, E. and Schmid, M. UNTERSUCHUNGEN AN STÜTZGEWEBEN. IV. WEITERE BEFUNDE ÜBER DIE GEFÄSSKANÄLE IM KNORPEL. NACH UNTERSUCHUNGEN AM ARMSKELET MENSCHLICHER EMBRYONEN. Zschr. mikr. anat. Forsch., 1933, 32: 1-41. 22 refs.

498
Houang, K. LE RÔLE DES ARTÈRES NOURRICIÈRES DES OS LONGS DANS LA FORMATION DU CAL ET LA CALCIFICATION DE LA CAVITÉ MÉDULLAIRE. Presse méd., 1934, 42: 2074-2076. 11 refs.

499
Introzzi, A. S. CONTRIBUCIÓN AL ESTUDIO DE LA OSTEOSIS FIBROGEÓDICA DE ORIGEN PARATIROIDEO. CONSECUENCIAS DE LA HIPEREMIA SOBRE LA ESTRUCTURA ÓSEA EN LOS HIPERPARATIROIDEOS. Sem. méd., B. Air., 1934, 41: 1641-1660. 21 refs. Abstracted in: Biol. Abstr., Balt., 1936, 10: No. 15772. In this study of osteitis fibrosa cystica clinical and experimental studies have been made of the effect of hyperemia on bone structure in hyperparathyroidism.

500
Janes, J. M. and Elkins, E. C. THE EFFECT OF A SURGICALLY INDUCED ARTERIOVENOUS FISTULA ON BONE GROWTH; REPORT OF A CASE. Proc. Mayo Clin., 1952, 27: 335-337. 4 refs. Description of a mid-femur operation on a 6 year old girl with legs of unequal length, due to early poliomyelitis. Approximately one year after the operation the affected leg had grown 4.1cm and the other 3.5cm. However, "a great deal more observation will be necessary before the procedure outlined ... can be recommended..."

501
Janes, J. M. and Musgrove, J. E. EFFECT OF ARTERIOVENOUS FISTULA ON GROWTH OF BONE. Proc. Mayo Clin., 1949, 24: 405-408.

502
Janes, J. M. and Musgrove, J. E. EFFECT OF ARTERIOVENOUS FISTULA ON GROWTH OF BONE. AN EXPERIMENTAL STUDY. Surg. Clin. N. America, 1950, 30: 1191-1200. 3 refs. Abstracted in: Biol. Abstr., Balt., 1952, 26: No. 15265; Excerpta med., Sect. 5, 1951, 4: No. 2971.

503
Kallius, H. U. EXPERIMENTELLE UNTERSUCHUNGEN ÜBER DIE LYMPHGEFÄSSE DER RÖHRENKNOCHEN. Beitr. klin. Chir., 1932, 155: 109-124. 2 pl. 59 refs. Abstracted in: Biol. Abstr., Balt., 1934, 8: No. 16551.

504
Key, J. A. and Walton, F. HEALING OF FRACTURES AND BONE DEFECTS AFTER VENOUS STASIS. Arch. Surg., 1933, 27: 935-940. 3 refs.

505
Kishikawa, E. [STUDIEN ÜBER EINIGE LOKALE REIZE, WELCHE DAS LÄNGENWACHSTUM DES LANGRÖHRENKNOCHENS STEIGERN] Fukuoka acta med., 1936, 29: 108-210. 16 pl. In Japanese with German Summary. Abstracted in: Biol. Abstr., Balt., 1937, 11: No. 17086.

506
*Kistler, G. H. EFFECTS OF CIRCULATORY DISTURBANCES ON STRUCTURE AND HEALING OF BONE; INJURIES OF HEAD OF FEMUR IN YOUNG RABBITS. Arch. Surg., 1936, 33: 225-247.

CIRCULATORY INFLUENCE (Continued)

507
Kistler, G. H. FORMATION OF BONE BY PERIOSTEUM AFTER EXPERIMENTAL INFARCTION BY EMBOLISM OF FEMUR IN RABBITS. Proc. Soc. Exp. Biol., N. Y., 1934, 31: 1218-1220. Abstracted in: Biol. Abstr., Balt., 1935, 9: No. 3087.

508
Kistler, G. H. SEQUENCES OF EXPERIMENTAL INFARCTION OF THE FEMUR IN RABBITS. Arch. Surg., 1934, 29: 589-611. 43 refs. Abstracted in: Biol. Abstr., Balt., 1935, 9: No. 16086.

509
Ko, K. [BLUTVERSORGUNG DER NORMALEN LANGEN RÖHRENKNOCHEN] J. Chosen M. Ass., 1940, 30: No. 3, 339-349. pl. 11 refs. German summary, p. 23.

510
Ko, K. [ÜBER DEN HEILUNGS-MECHANISMUS DES KNOCHENBRUCHES UND DIE BRUCHHYPERÄMIE BEI NORMALEN UND BEI SYMPATHEKTOMIERTEN HUNDEN] J. Chosen M. Ass., 1940, 30: No. 3, 350-354. 2 pl. 10 refs. German summary, p. 23-24.

511
Kopaczewski, W. and Pocoule, A. LACTOGÉLIFICATION SÉRIQUE ET FORMATION DES CALS OSSEUX. C. rend. Soc. biol., 1946, 140: 387-388. Abstracted in: Chem. Abstr., 1947, 41: 4841d.

512
*Kos, J. CEVNI ZASOBENI VELKYCN KOSTI HRUDNI KONCETINY. [BLOOD SUPPLY TO LONG BONES OF THE UPPER EXTREMITIES] Sborn. lék. Praha, 1951, 53: 171-181.

513
Krompecher, I. A PRIMAER ANGIOGEN CSONTFEJLÖDÉS. [THE PRIMARY ANGIOGENIC OSSIFICATION] Magy. orv. arch., 1934, 35: 418-425.

514
Kühne, H. KÜNSTLICHE ERWEICHUNG DES LEBENDEN KNOCHENS MIT AMMONIUMCHLORID; WIRKUNG DES NH_4Cl AUF DIE ORGANE. Beitr. Klin. Chir., 1952, 184: 373-381. 26 refs. Young dogs administered ammonium chloride showed increased serum calcium levels and increased excretion of calcium in urine. A tourniquet applied 17 hours a day on different extremities provoked a local effect on the bone, caused by the too acid blood supply beneath the tourniquet. It was concluded that it is possible to soften the living bone by producing an artificial, chronic serum acidosis with ammonium chloride. A calcium poor diet during the experimental period increased the depletion of skeletal calcium reserves. Significant changes were also noted in the kidneys and other organs. The literature is reviewed.

515
Lacroix, P. LA DISPOSITION DU CANAL DE L'ARTÈRE NOURRICIÈRE DANS LES OS LONGS. Arch. biol., Par., 1948, 59: 391-403. 10 refs. Abstracted in: Excerpta med., Sect. 1, 1950, 4: No. 1575; Biol. Abstr., Balt., 1949, 23: No. 21336.

516
Laing, P. G. and Kent, P. THE BLOOD SUPPLY OF THE FEMORAL SHAFT. J. Bone Surg., 1953, 35B: 462-466. 2 refs. The literature is reviewed and details of the blood supply of the shaft of the femur in 17 children under 1 year of age and in 10 adults are given. Findings indicated the variability of nutrient arteries; a considerable number of femora had only one main nutrient vessel supplying the shaft, and in most cases, even no major artery entered the lower third of the shaft. These findings are discussed with reference to the fate of the femoral shaft after fracture or operation.

517
Lamas, A., Dias-Amado, L. and Costa, J. C. da. LA CIRCULATION DU SANG DANS L'OS. Presse méd., 1946, 54: 862-863. An experimental study of blood circulation in bone and how it differs from that in soft tissues. The construction of the walls of the bone arteries is also described.

518
McMaster, P. E. and Roome, N. W. THE EFFECT OF SYMPATHECTOMY AND OF VENOUS STASIS ON BONE REPAIR. AN EXPERIMENTAL STUDY. J. Bone Surg., 1934, 16: 365-371. 12 refs. Abstracted in: Biol. Abstr., Balt., 1936, 10: No. 889.

519
Marquès, A. and Bru, A. CONTRIBUTION À L'ÉTUDE DE LA CIRCULATION OSSEUSE À L'AIDE D'ISOTOPES RADIOACTIFS. J. belge. radiol., 1952, 35: 370-372.

520
Montanari Reggiani, M. L'IMPORTANZA DEL FATTORE CIRCOLATORIO SULLA FORMAZIONE DEL CALLO OSSEO. Arch. ital. chir., 1939, 56: 272-302. Approx. 85 refs.

521
Orts Llorca, F. and Vergé Brian, F. CONTRIBUTION À L'ÉTUDE DES LYMPHATIQUES DU PÉRIOSTE DES OS LONGS DES MEMBRES. C. rend. Ass. anat., 1932, 27: 436-439. 7 refs. Abstracted in: Biol. Abstr., Balt., 1935, 9: No. 5948. The course of the periosteal lymphatics of the long bones of the extremities of the human fetus and newborn infant were traced by the Gerota injection method.

522
Oshkaderov, V. I. LIMFATICHESKIE PUTI TRUBCHATYKH KOSTEI CHELOVEKA I DOMASHNIKH ZHIVOTNYKH. [LYMPHATIC VESSELS OF LONG BONES IN MAN AND DOMESTIC ANIMALS] Khirurgia, Moskva, 1949, 12: No. 9, 49-54. Abstracted in: Excerpta med., Sect. 1, 1950, 4: No. 1351.

523
Payton, C. G. THE POSITION OF THE NUTRIENT FORAMEN AND DIRECTION OF THE NUTRIENT CANAL IN THE LONG BONES OF THE MADDER-FED PIG. J. Anat., Lond., 1934, 68: 500-510. 18 refs.

524
Pearse, H. E., Jr. and Morton, J. J. THE INFLUENCE OF ALTERATIONS IN CIRCULATION ON THE REPAIR OF BONES. J. Bone Surg., 1931, 13: 68-74. 5 refs.

525
Pearse, H. E., Jr. and Morton, J. J. THE STIMULATION OF BONE GROWTH BY VENOUS STASIS. J. Bone Surg., 1930, 12: 97-111. 31 refs. Abstracted in: Biol. Abstr., Balt., 1931, 5: No. 18461. A review of the literature is followed by a description of experiments on dogs and the presentation of clinical cases in which good results were obtained.

526
Pearse, H. E., Jr. and Morton, J. J. VENOUS STASIS ACCELERATES BONE REPAIR. Surgery, 1937, 1: 106-112.

527
Pinard, A. STRUCTURE DES VAISSEAUX DE LA DIAPHYSE DES OS LONGS CHEZ LE FOETUS HUMAIN. Acta anat., Basel, 1952, 15: 188-216. 24 refs. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 1106; Excerpta med., Sect. 1, 1953, 7: No. 292. Histologic study of the structure and vessels of the diaphysis of the long bones of the human foetus.

CIRCULATORY INFLUENCE (Continued)

528
Reichel, S. M. VASCULAR SYSTEM OF THE LONG BONES OF THE RAT. Surgery, 1947, 22: 146-157. 11 refs. Abstracted in: Excerpta med., Sect. 1, 1948, 2: No. 1423.

529
Remé, H. EXPERIMENTELLE STUDIEN ÜBER DEN KNOCHENUMBAU AUS VERSCHIEDENEN URSACHEN. Deut. Zschr. Chir., 1953, 257: 115-188. Abstracted in: Ber. ges. Physiol., 1943, 133: 325. 60 refs. In rabbits extensive investigations showed that areas of spontaneous collateral bone degeneration and regeneration could be related to various distant causes. These stimuli were experimental hyperemia produced by nerve resection, growth and fracture.

530
Repciuc, E. DIE GEFÄSSKANÄLE DER PROXIMALEN KNORPELIGEN FEMUREPIPHYSE UND DEREN BEZIEHUNGEN ZUR VERKNÖCHERUNG. II. BEZIEHUNGEN DER GEFÄSSKANÄLE ZUM KNORPEL. Bull. Acad. roumain., 1944, 26: 511-518. 3 pl. 11 refs.

531
Rieder, W. and Never, H. DER KALKSTOFFWECHSEL DES ISOLIERTEN UBERLEBENDEN KNOCHENS BEI VENÖSER DURCHBLUTUNG. Klin. Wschr., 1932, 11: 501-502. 6 refs. Abstracted in: Chem. Abstr., 1932, 26:4846; Nutrit. Abstr., Aberdeen, 1932-33, 2: No. 447.

532
Rogers, W. M. and Gladstone, H. VASCULAR FORAMINA AND ARTERIAL SUPPLY OF THE DISTAL END OF THE FEMUR. J. Bone Surg., 1950, 32A: 867-874. 7 refs. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 14004; Excerpta med., Sect. 1, 1951, 5: No. 787.

533
Rubaschewa, A. and Priwes, M. G. BLUTVERSORGUNG DER LANGEN ROHRENKNOCHEN DES HUNDES. Zschr. Anat. Entw., 1932, 98: 361-374. 10 refs. Abstracted in: Biol. Abstr., Balt., 1934, 8: No. 14448.

534
Rubaschewa, A. and Priwes, M. G. VASKULARISATION DER RÖHRENKNOCHEN BEI AUTOTRANSPLANTATEN. Beitr. klin. Chir., 1932, 156: 299-312. 20 refs.

535
Rutishauser, E., Majno, G. and Rouiller, C. L'HALASTASIE DU TISSU OSSEUX; ÉTUDE DES VARIATIONS MINÉRALES SECONDAIRES À UN TRAUMATISME THERMIQUE. Schewiz. Zschr. allg. Path., 1953, 16: 118-124. 8 refs. Rabbit metatarsals were exposed to a temperature of 55° C. for 3 minutes and determinations made of the calcium, phosphorus and ash content in the superficial and deep portions of the diaphyseal cortex. Hypermineralization observed on the 6th day was followed by demineralization of the injured bone. A difference was noted in the calcium content of the inner and outer layers of the cortex which suggested a difference in the subperiosteal and subendosteal blood supply. Corresponding modifications occurred in the collateral bone.

536
Sacerdote, G. SULLE CONSEGUENZE DI INTERRUZIONI CIRCOLATORIE E DI FRATTURE NELLE EPIFISI DI ANIMALI IN ACCRESCIMENTO. Chir. org. movim., 1931, 16: 291-305. 11 refs. Abstracted in: Biol. Abstr., Balt., 1933, 7: No. 1839.

537
Schumacher, S. ZUR ANORDNUNG DER OLER GEFÄSSKANÄLE IN DER DIAPHYSE LANGER RÖHRENKNOCHEN DES MENSCHEN. Zschr. mikr. anat. Forsch., 1935, 38: 145-160. 9 refs.

538
Servelle, [M.] STASE VEINEUSE ET CROISSANCE OSSEUSE. Bull. Acad. méd., Par., 1948, 132: 471-474. Abstracted in: Excerpta med., Sect 5, 1949, 2: No. 1887.

539
Sèzę, S. de and Ryckewaert, A. CALCIFICATION, DÉCALCIFICATION ET CIRCULATION OSSEUSE; L'INFLUENCE DES VARIATIONS DU RÉGIME CIRCULATOIRE SUR LES ÉCHANGES CALCIQUES DE L'OS. Rev. rhumat., Par., 1945, 12: 269-285.

540
Sobel, A. E., Rockenmacher, M. and Kramer, B. COMPOSITION OF BONE IN RELATION TO BLOOD AND DIET. J. Biol. Chem., 1945, 159: 159-171. 37 refs. Abstracted in: Biol. Abstr., Balt., 1945, 19: No. 18206; Chem. Abstr., 1945, 39: 4661[4].

541
*Somogyi, E. ADATOK A LAPOS CSONTOK ERRENDSZERENEK VIZSGALATAHOZ. [VASCULAR SYSTEM OF FLAT BONES] Kiserletes Orvostud., 1951, 3: 250-254.

542
Sousa Pereira. A INFLUÊNCIA DAS PERTURBAÇÕES DA VASCULARIZAÇÃO SÔBRE O CRESCIMENTO DOS OSSOS EM COMPRIMENTO; ESTUDIO EXPERIMENTAL. Impr. méd., Lisb., 1936, 2: 225-232. French translation in: Rev. orthop., Par., 1938, 25: 140-154. Abstracted in: Internat. Abstr., 1938, 67: 378. "Findings in this group of experiments [with rabbits] would suggest: The vascularity of a bone must be very markedly disturbed in order to modify endochondral ossification and the growth in length of bone. ... It is assumed that the periosteum and the perichondrium play an equal rôle along with the vascularity in the growth in length of the bone." - Internat Abstr.

543
Teneff, S. EXPERIMENTAL STUDIES ON VASCULARIZATION OF BONY CALLUSES. J. Internat. Coll. Surgeons, 1950, 13: 186-191. 4 refs.

544
Trueta, J. THE INFLUENCE OF THE BLOOD SUPPLY IN CONTROLLING BONE GROWTH. Bull. Hosp. Joint Dis., N. Y., 1953, 14: 147-157. 13 refs.

545
*Trueta, J. LA INFLUENCIA DE LA CIRCULACIÔN EN EL CRECIMIENTO DE LOS HUESOS. Bol. Soc. argent. ortop. traumatol., 1950, 15: 114-117. Abstracted in: Excerpta med., Sect. 1, 1951, 5: No. 630.

546
Trueta, J. REGENERATION OF BONE AND CARTILAGE. J. internat. chir., Brux., 1953, 13: 184-185. Translations in German, Spanish, French and Italian, p. 185-193. The importance of the blood supply in the regeneration of bone is discussed under the following headings: 1. Regeneration caused by trauma. 2. Regeneration caused by disease. 3. Overgrowth caused by increasing the metaphyseal blood flow.

CIRCULATORY INFLUENCE (Continued)

547
Trueta, J. and Harrison, M. H. M. THE NORMAL VASCULAR ANATOMY OF THE FEMORAL HEAD IN ADULT MAN. J. Bone Surg., 1953, 35B: 442-461. 34 refs. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 5918. No evidence was found to support the common belief that circulation within the femoral head decreases quantitatively with advancing age.

548
Vereby, K. DIE BLUTVERSORGUNG DES FEMURKOPFES. Anat. Anz., 1942, 93: 225-240. 10 refs. Abstracted in: Biol. Abstr., Balt., 1946, 20: No. 829.

549
Voss, H. DAS MENGENVERHÄLTNIS VON BLUTRAUM UND KNOCHENGEWEBE IN DER KOMPAKTEN SUBSTANZ MENSCHLICHER RÖHRENKNOCHEN. Anat. Anz., 1931, 72: 257-261. 2 refs. Abstracted in: Biol. Abstr., Balt., 1932, 6: No. 23349.

550
Wagoner, G. and Pendergrass, E. P. INTRINSIC CIRCULATION OF THE VERTEBRAL BODY WITH ROENTGENOLOGIC CONSIDERATIONS. Am. J. Roentg., 1932, 27: 818-826. Abstracted in: Biol. Abstr., Balt., 1933, 7: No. 15933.

551
Zambelli, E. and Campi, L. LA DISTRIBUZIONE DEL FOSFORO MARCATO P^{32} DOPO BLOCCO DEL SISTEMA RETICOLO-ISTICOCITARIO; RICERCHE NEI TOPI ALBINI. Arch. sc. med., Tor., 1953, 96: 798-815. 24 refs. Abstracted in: Chem. Abstr., 1954, 48: 4018b.

See:

140 715 1556 1915 2162 2318

COLLAGEN AND RETICULIN - BIBLIOGRAPHY

552
Borasky, R. GUIDE TO THE LITERATURE ON COLLAGEN. 135p. Philadelphia, Eastern Regional Laboratory, 1950. (U.S. Bureau of Agriculture and Industrial Chemistry. AIC-278). Covers the period 1830-1949 and includes 1008 references arranged by broad subjects.

553
Murray, M. R. and Kopech, G. A BIBLIOGRAPHY OF THE RESEARCH IN TISSUE CULTURE, 1884 TO 1950. New York, Academic Press, 1953. v.1 Collagen: p. 311-313. v.2 Reticulin: p. 1394-1395.

COLLAGEN AND RETICULIN OF BONE AND CARTILAGE

554
Bofill-Deulofeu, J. DIE ARGYROPHILEN FASERSTRUKTUREN IN MESENCHYMALEN GEWEBEKULTUREN VON VERSCHIEDENER HERKUNFT UND VON VERSCHIEDENER WASHSTUMSGESCHWINDIGKEIT. Zschr. Zellforsch., 1932, 14: 744-769. 28 refs.

555
Bucher, R. and Straumann, R. DIE BEDEUTUNG DER KRISTALLINEN STRUKTUR DER KOLLAGENEN FASER FUR DIE NORMALE UND PATHOLOGISCHE KALKPRAZIPITATION. Schweiz. med. Wschr., 1937, 67: 619-622. 1 ref. Abstracted in: Chem. Abstr., 1939, 33: 2967^6.

556
Clark, J. H. A STUDY OF TENDONS, BONES, AND OTHER FORMS OF CONNECTIVE TISSUE BY MEANS OF X-RAY DIFFRACTION PATTERNS. Am. J. Physiol., 1931, 98: 328-337. 12 refs. Abstracted in: Chem. Abstr., 1931, 25: 5683. "X-ray diagrams of bones and teeth, by the monochromatic pinhole method, show that inorganic crystals of apatite are present in bone oriented so as to give fiber structure in longitudinal section. There are also unoriented crystals present which are attributed to organic crystals of collagen, or ossein. The possible importance of crystalline collagen in bones, as one of the physico-chemical factors involved in the process of bone formation, is discussed."

557
Emiliani, P. and Bazzocchi, G. BLOCCAGGIO DEL SISTEMA RETICOLO ENDOTELIALE E CALLO OSSEO. Arch. Soc. ital. chir., 1933, 40: 690-691.

558
Engström, A., Engfeldt, B. and Zetterström, R. RELATION BETWEEN COLLAGEN AND MINERAL SALTS IN BONE TISSUE. Experientia, Basel, 1952, 8: 259. 1 ref. Abstracted in: Chem. Abstr., 1952, 46: 11371^i. In vivo studies indicated that collagen had the ability to orient mineral salts, particularly in the form of hydroxyapatites. Rat tail tendon soaked in hydroxyapatite solutions of different ionic strength indicated that collagen also had the ability to orient minerals in vitro.

559
Filogamo, G. PRECISAZIONI SULLA DISPOSIZIONE E SULL'ORIENTAMENTO DELLE FIBRE COLLAGENE DEGLI OSTEONI, NELL'UOMO. Ricer, morf., 1952, 22: 99-104. pl. 3 refs. Studies made on sections of the diaphysis of different human bones. It was found that the direction of the collagenous fibers generally vary only slightly and that the differences in direction are more accented in the old than in the young individual.

560
Franceschini, M. RICERCHE POLARISCOPICHE SULLA DISPOZIONE DELLE FIBRE COLLAGENE NELLA CARTILAGINE DI CONJUGAZIONE E NEI CENTRI DI OSSIFICAZIONE. Rass. biol. umana, 1946, 1: 78-83. 2 refs. A study in polarized light of the arrangement of the collagen fibrils in human epiphyseal cartilage and ossification centers.

561
Franceschini, M. SULL'ARCHITETTURA DEL COMPONENTE COLLAGENE ED ELASTICO DELLE FIBROCARTILAGINI INTRAARTICOLARI DELL'UOMO, NELLE VARIE ETÀ. Biol. lat., Milano, 1950, 2: 877-904. 39 refs. English, French and Spanish summaries. "On 50 subjects (from 50 cm. CH foetuses to old subjects of both sexes) the author investigated in polarized light and with the Mallory-Azan and Unna-Tanzer-Livini methods the architecture of the collagenous and elastic components of the intra-articular fibrocartilages in relation with age."

562
Huber, L. and Rouiller, C. LES FIBRILLES COLLAGÈNES DE L'OS. (ÉTUDE AU MICROSCOPE ÉLECTRONIQUE). Experientia, Basel, 1951, 7: 338-340. 12 refs. This electromicroscopic study of bone collagen indicated that the fibrillary periodicity is constant at approximately 610A° and that bone thickness varies. Fibrillary collagen of normal bone is not mineralized but is surrounded by cement substance. This embedding probably occurs soon after formation of the fibrils.

COLLAGEN AND RETICULIN OF BONE AND CARTILAGE (Continued)

563
*Kasavina, B. S. and Kuneeva, Z. I. [A BIOCHEMICAL STUDY OF THE CONTRACTILE PROTEINS OF HUMAN AND ANIMAL SKELETAL TISSUES] Doklady Akad. nauk SSSR, 1950, 71: 713-716.

564
Lightfoot, L. H. and Coolidge, T. B. DISTRIBUTION OF COLLAGEN IN THE GUINEA PIG. J. Biol. Chem., 1948, 176: 477-484. 4 refs. Abstracted in: Chem. Abstr., 1949, 43: 1825e; Biol. Abstr., Balt., 1949, 23: No. 15426. The tissues investigated were gastrocnemius muscle, fascia and femur.

565
Martin, A. V. W. ELECTRON MICROSCOPE STUDIES OF COLLAGENOUS FIBERS IN BONE. Biochim. biophys. acta, Amst., 1953, 10: 42-48. 2 pl. 11 refs. "Collagenous fibres from adult fowl bone, unlike those from mammalian material, remain undamaged when isolated for electron microscopy by ordinary histological decalcification methods followed by mechanical fragmentation... Bone collagen fibres thus obtained are examined in the electron microscope and compared with untreated and 'decalcified' collagenous fibres from other sources."

566
METABOLISM OF COLLAGEN. Nutrit. Rev., 1953, 11: 82-84. A short review.

567
Neuberger, A. and Slack, H. G. [B.] THE METABOLISM OF COLLAGEN FROM LIVER, BONE, SKIN AND TENDON IN THE NORMAL RAT. Biochem. J., Lond., 1953, 53: 47-52. 8 refs. Abstracted in: Chem. Abstr., 1953, 47: 3421h. Rats of different ages, injected intraperitoneally with [α-^{14}C] glycine, were killed at varying intervals and determinations made of the radioactivity of the dinitrophenylglycine isolated from the hydrolisate of the tissues studied. Though the results are not clear-cut, they suggest that even in adult rats, collagen fibers are continually but very slowly replaced, the turnover rates being highest for collagen from bone. This change is likely somewhat faster in young rats.

568
Neuman, R. E. THE AMINO ACID COMPOSITION OF GELATINS, COLLAGENS AND ELASTINS FROM DIFFERENT SOURCES. Arch. Biochem., N.Y., 1949, 24: 289-298. 49 refs. "An almost complete amino acid analysis was made of 4 gelatin, 12 collagen, and 6 elastin preparations." Cattle bone was one of the sources for collagen.

569
Neuman, R. E. and Logan, M. A. THE DETERMINATION OF COLLAGEN AND ELASTIN IN TISSUES. J. Biol. Chem., 1950, 186: 549-556. 6 refs. "The collagen content of different tissues [including bone, tibia and femur] of the cow, pig, and rat, and of human, guinea pig, dog, and rat skin as determined by the present method is reported."

570
Perrone, J. C. and Slack, H. G. B. THE METABOLISM OF COLLAGEN FROM SKIN, BONE AND LIVER IN THE NORMAL RAT. Biochem. J., Lond., 1951, 49: Proc. 72-73. An abstract.

571
Randall, J. T., Fraser, R. D. B., Jackson, S. F., Martin, A. V. W. and North, A. C. T. ASPECTS OF COLLAGEN STRUCTURE. Nature, Lond., 1952, 169: 1029-1033. 23 refs. See particularly p. 1029-1030 for collagen fibres in skeletal tissues. Abstracted in: Brit. Abstr., Sect. AIII, 1953, p. 181.

572
Rogers, H. J., Weidman, S. M. and Parkinson, A. STUDIES ON THE SKELETAL TISSUES. II. THE COLLAGEN CONTENT OF BONES FROM RABBITS, OXEN, AND HUMANS. Biochem. J., Lond., 1952, 50: 537-542. 16 refs. "The organic matrix in the bones of rabbits, oxen and humans consists of from 90 to 96% collagen, or collagen-like proteins. Variations in the amount of total nitrogen relative to calcium in bones correspond to true differences in degree of calcification... The degree of calcification of mid-femur samples of human bone increases with increasing age of the subject."

573
SYMPOSIUM ON COLLAGEN. Ann. Rheumat. Dis., Lond., 1948-1949, 7: 33-38. Discussion: p. 35-38.

574
*Wurmbach, H. MODELLVERSUCHE ZUR BILDUNG DER KOLLAGENFEINSTRUKTUR DES KNORPELS. Zool. Jahrb., 1945, 69: 251-272.

See:

101	120	122	129	130
408	962	2201	2339	2380
2381	2531	2537	2811	2814
2815	2816	2817		

COLLAGEN AND RETICULIN OF TISSUES OTHER THAN BONE AND CARTILAGE

575
Banfield, W. G. THE SOLUBILITY AND SWELLING OF COLLAGEN IN DILUTE ACID WITH AGE VARIATIONS IN MAN. Anat. Rec., 1952, 114: 157-171. 12 refs. Abstracted in: Biol. Abstr., Balt., 1954, 28: No. 16153.

576
Bear, R. S. THE STRUCTURE OF COLLAGEN FIBRILS. Advance. Protein. Chem., 1952, 7: 69-160. 219 refs.

577
Bowes, J. H. and Kenten, R. H. THE AMINO-ACID COMPOSITION AND TITRATION CURVE OF COLLAGEN. Biochem. J., Lond., 1948, 43: 358-365. Approx. 60 refs.

578
Bowes, J. H. and Kenten, R. H. THE EFFECT OF ALKALIS ON COLLAGEN. Biochem. J., Lond., 1948, 43: 365-372. 25 refs. Sources of collagen were ox-hide, sheep skin and calf skin.

579
Bowes, J. H. and Kenten, R. H. SOME OBSERVATIONS ON THE AMINO-ACID DISTRIBUTION OF COLLAGEN, ELASTIN AND RETICULAR TISSUE FROM DIFFERENT SOURCES. Biochem. J., Lond., 1949, 45: 281-285. 21 refs.

580
Bresler, S. E., Finogenov, P. A. and Frenkel', S. IA. O STROENII MAKROMOLEKULY PROKOLLAGENA. [THE STRUCTURE OF THE PROCOLLAGEN MACROMOLECULE] Doklady Akad. nauk SSSR, 1950, 72: 555-558. 8 refs.

581
Crick, F. H. C. A STRUCTURE FOR COLLAGEN. J. Chem. Phys., 1954, 22: 347-348. 5 refs. Abstracted in: Chem. Abstr., 1954, 48: 7085a.

582
Grassmann, W. ELECTRON OPTICAL AND CHEMICAL STUDIES ON THE STRUCTURE OF COLLAGEN. IN: THE CHEMICAL STRUCTURE OF PROTEINS. (Wolstenholme, G. E. W. and Cameron, M. P., eds.) Boston, Little Brown, [1953?] p. 195-212. Discussion: p. 210-212. 3 pl. 63 refs.

COLLAGEN AND RETICULIN OF TISSUES OTHER THAN BONE AND CARTILAGE (Continued)

583
*Gross, J EVALUATION OF STRUCTURAL AND CHEMICAL CHANGES IN CONNECTIVE TISSUE. Ann. N. York Acad. Sc., 1953, 56: 674-683. Abstracted in: Excerpta med., Sect. 1, 1954, 8: No. 977.

584
Gross, J. IN VITRO FIBROGENESIS OF COLLAGEN. Tr. Conf. Metab. Interrelat., 1952, 4.Conf., 32-57. Conference discussion: p. 47-57. 25 refs. Also published as Robert W. Lovett Memorial for the Study of Crippling Disease, No. 130. Harvard Medical School.

585
*Highberger, J. H., Gross, J. and Schmitt, F. O. THE INTERACTION OF MUCOPROTEIN WITH SOLUBLE COLLAGEN; AN ELECTRON MICROSCOPE STUDY. Proc. Nat. Acad. Sc. U. S., 1951, 37: 286-291.

586
Holmes, W. RETICULIN AND ITS RELATION TO COLLAGEN AND BASEMENT MEMBRANES. Science Progr., Lond., 1953, 41: 116-122.

587
Irving, E. A. and Tomlin, S. G. COLLAGEN, RETICULUM AND THEIR ARGYROPHILIC PROPERTIES. Proc. R. Soc., Ser. B, Biol. Sc., Lond., 1954, 142: 113-125. pl. 22 refs. "Silver-impregnated collagen with and without a hyaluronic acid matrix has been examined electron microscopically with results which clarify the nature of argyrophilia. The final conclusion is that there is nothing to contradict the view that mature collagen consists of closely packed reticular fibres in a modified medium."

588
Jackson, D. S. THE NATURE OF COLLAGEN-CHONDROITIN SULPHATE LINKAGES IN TENDON. Biochem. J., Lond., 1954, 56: 699-703. 17 refs.

589
Jackson, D. S. and Ball, J. A SOLUBLE FORM OF RECONSTITUTED COLLAGEN. Nature, Lond., 1953, 172: 1046. 3 refs. "This suggests that chondroitin sulphate strengthens both the transverse and end-to-end linkages in this type of reconstituted collagen, and strengthens the evidence previously presented that chondroitin sulphuric acid is concerned in stabilizing the structure of tendon."

590
Kanagy, J. R. CHEMISTRY OF COLLAGEN. 26p. Washington, U.S. Government Printing Office, 1947. (Circular of the National Bureau of Standards C458). 46 refs. A general outline of the physical as well as the chemical properties of collagen, intended specifically for the use of industrial chemists.

591
Kaesberg, P. and Shurman, M. M. FURTHER EVIDENCE CONCERNING THE PERIODIC STRUCTURE IN COLLAGEN. Biochim. biophys. acta, Amst., 1953, 11: 1-6. 12 refs. Abstracted in: Brit Abstr. M. Sc., 1954, p. 313.

592
*Kulonen, E., Mathews, M. B. and Dorfman, A. STUDIES IN PROCOLLAGEN. I. SOLUBILITY. Proc. Soc. Exp. Biol., N. Y., 1953, 84: 424-428. 13 refs.

593
Little, K. and Kramer, H. NATURE OF RETICULIN. Nature, Lond., 1952, 170: 499. The object of this histological survey was to differentiate between reticulin and collagen. Results "indicate that reticulin, wherever it occurs, has a membranous structure. It consists of minute randomly oriented collagen-type fibrils embedded in a structureless matrix, which is probably a glucoprotein."

594
Lowry, O. H., Gilligan, D. R. and Katersky, E. M. THE DETERMINATION OF COLLAGEN AND ELASTIN IN TISSUES, WITH RESULTS OBTAINED IN VARIOUS NORMAL TISSUES FROM DIFFERENT SPECIES. J. Biol. Chem., 1941, 139: 795-804. 6 refs.

595
Neuman, R. E. and Tytell, A. A. ACTION OF PROTEOLYTIC ENZYMES ON COLLAGEN. Proc. Soc. Exp. Biol., N. Y., 1950, 73: 409-412. 8 refs.

596
*Neurath, H. and Bailey, K. C., eds. PROTEINS: CHEMISTRY, BIOLOGICAL ACTIVITY AND METHODS. 2v. New York, The Academic Press, 1953- See particularly: Structure proteins I: v.2, pt. B. This part of volume two is now in press.

597
Opie, E. L. and Rothbard, M. B. WATER EXCHANGE OF COLLAGENOUS TISSUE AND OF GELATIN. J. Exp. M., 1953, 97: 499-503. 10 refs. The water intake of collagenous tissue (corium of the skin, tendon and tendinous fascia of muscles) and of gelatin is similar, occurring in solutions of sodium chloride of sucrose and increasing as their density is increased. Dense collagenous tissue has a marked tendency to attract water and to hold it.

598
Oriekhovitch, V. N. LES PROCOLLAGÈNES, COMPOSITION CHIMIQUE. PROPRIÉTÉS ET RÔLE BIOLOGIQUE. C. rend. Internat. Congr. Biochim., 1952, 2.Congr., [Fasc.]2, p. 62. Abstract of a paper presented at the Symposium sur la biogénèse des protéines.

599
*Oriekhovitch, V. N. LES PROCOLLAGÉNES, LEUR STRUCTURE CHIMIQUE ET LEUR RÔLE BIOLOGIQUE. Internat. Congr. Biochem., Paris, 1952, 2: 106.

600
Pauling, L. and Corey, R. B. THE STRUCTURE OF FIBROUS PROTEINS OF THE COLLAGEN-GELATIN GROUP. Proc. Nat. Acad. Sc. U. S., 1951, 37: 272-281. 9 refs.

601
Policard, A. SUR LES STADES INFRAMICROSCOPIQUES DU DÉVELOPPEMENT DES FIBRES CONJONCTIVES. Bull. micr. appl., Par., 1952, 2: 137-147. 26 refs. "Critical review on the inframicroscopic processes of collagenous fibrillogenesis, first separately considered, then in reference to the connective tissue. Intervening factors in the formation and arrangement of fibrillae."

602
Ramachandran, G. N. and Kartha, G. STRUCTURE OF COLLAGEN. Nature, Lond., 1954, 174: 269-270. 5 refs.

603
Randall, J. T. and Jackson, S. F., eds. NATURE AND STRUCTURE OF COLLAGEN; PAPERS PRESENTED FOR A DISCUSSION CONVENED BY THE COLLOID AND BIOPHYSICS COMMITTEE OF THE FARADAY SOCIETY AT KING'S COLLEGE, LONDON, ON 26 AND 27 MARCH 1953. 269p. New York, Academic Press, 1953. Bibliography: p. 253-264.

604
Randall, J. T., Fraser, R. D. B. and North, A. C. T. THE STRUCTURE OF COLLAGEN. Proc. R. Soc., Ser. B, Biol. Sc., Lond., 1953, 141: 62-66. 6 refs.

COLLAGEN AND RETICULIN OF TISSUES OTHER THAN BONE AND CARTILAGE (Continued)

605
Sacerdote De Lustig, E. and Mancini, R. E. ACCIÓN DE LA DESOXICORTICOSTERONA Y CORTISONA SOBRE LA FIBRILOGENESIS EN CULTIVOS DE FIBROBLASTOS. Rev. Soc. argent. biol., 1951, 27: 149-156. 17 refs. Abstracted in: Excerpta med., Sect. 1, 1953, 7: No. 1753.

606
Schmitt, F. O., Hall, C. E. and Jakus, M. A. ELECTRON MICROSCOPE INVESTIGATIONS OF THE STRUCTURE OF COLLAGEN. J. Cell. Physiol., 1942, 20: 11-33. 3 pl. 24 refs.

607
*Seki, M. MOLEKULARHISTOLOGISCHE STUDIEN ÜBER DIE ELEMENTAR- UND MIKROFIBRILLEN DES KOLLAGEN MIT BESONDERER BERÜCKSICHTIGUNG DER DIPOLRICHTWIRKUNG BEI IHRER NEUBILDUNG UND ENTWICKLUNG. Arch. histol. japonicum, Okayama, 1952, 3: 465-476. Abstracted in: Excerpta med., Sect. 1, 1953, 7: No. 902.

608
Stack, M. V. ESTIMATION OF COLLAGEN IN HARD TISSUES. Nature, Lond., 1950, 166: 1080-1081. 8 refs.

609
Vanamee, P. and Porter, K. R. OBSERVATIONS ON SOLVATION AND RECONSTITUTION OF COLLAGEN. Fed. Proc., Balt., 1951, 10: 263. An abstract.

610
Wolpers, C. DIE QUERSTREIFUNG DER KOLLAGENEN BINDEGEWEBSFIBRILLE. Virchows Arch., 1944, 312: 292-302. 22 refs.

CRYSTAL STRUCTURE AND SURFACE ACTIVITY

611
Armstrong, W. D. COMPOSITION AND CRYSTAL STRUCTURE OF THE BONE SALT. Tr. Conf. Metab. Interrelat., 1950, 2.meet., 11-31. 35 refs. A review of the main theories of the constitution of bone salt with comments on the work of Dallemagne and of Cartier.

611a
Barraud, J. BIOCRISTALLOGRAPHIE DE L'OS ET DE L'OSSIFICATION. Bull. Soc. fr. Minéral. Cristallogr., 1954, 77: 786-796. Bibliographie: p. 795-796.

612
Barraud, J. and Cartier, P. ÉTUDE RADIOCRISTALLOGRAPHIQUE DE LA DÉMINÉRALIZATION DE L'OS. C. rend. Acad. sc., 1951, 232: 417-419. 4 refs. Abstracted in: Chem. Abstr., 1951, 45: 6272^{d}. Samples of powdered bone, defatted and dried at 37^{o} C. were demineralized in a solution of lactic acid at pH 3.5 or in a solution of hydrochloric acid and the process of demineralization studied. In slow demineralization the bone reacted like a mixture of alpha tricalcium phosphate and calcium carbonate and not like an apatite; in rapid demineralization bone reaction was similar to that of the calcium phosphate-calcium carbonate mixture and to that of synthetic apatite as well.

613
Brandenberger, E. and Schinz, H. R. DIE NATUR DER ANORGANISCHEN KNOCHENSUBSTANZ. Experientia, Basel, 1948, 4: 59-60. 8 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1948-49, 18: No. 727; Excerpta med., Sect. 2, 1948, 1: No. 5007.

614
Brandenberger, E. and Schinz, H. R. ÜBER DIE NATUR DER VERKALKUNG BEI MENSCH UND TIER UND DAS VERHALTEN DER ANORGANISCHEN KNOCHENSUBSTANZ IM FALLE DER HAUPTSÄCHLICHEN MENSCHLICHEN KNOCHENKRANKHEITEN. Helvet. med. acta, Ser. A, 1945, 12: Suppl. 16. 63p. Approx. 130 refs.

615
Bredig, M. A. ZUR APATITSTRUKTUR DER ANORGANISCHEN KNOCHEN- UND ZAHNSUBSTANZ. Zschr. physiol. Chem., 1933, 216: 239-243. 13 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1933-34, 3: No. 1858; Chem. Abstr., 1933, 27: 3243.

616
Caglioti, V. SULLA STRUTTURA DELLE OSSA. Atti Congr. naz. chim., 5.meet., (1935) 1936, 320-330. Abstracted in: Chem. Abstr., 1937, 31: 3972^{4}.

617
Clark, G. L. and Mrgudich, J. N. AN X-RAY DIFFRACTION STUDY OF THE EFFECT OF RACHITIS UPON THE STRUCTURAL CHARACTERISTICS OF BONE. Am. J. Physiol., 1934, 108: 74-79. 10 refs. Diffraction patterns show that in the humerus of the normal rat, the orientation of the inorganic crystals of bone is lengthwise along the bone, while in the rachitic rat this orientation disappears as a result of the breakdown of the organic cement (collagen) which holds the inorganic crystals in normal position.

618
Clark, S. M. and Iball, J. ORIENTATION OF APATITE CRYSTALS IN BONE. Nature, Lond., 1954, 174: 399-400. 6 refs.

619
Dallemagne, M. J. and Brasseur, H. LA COMPOSITION ET LA CONSTITUTION DE LA SUBSTANCE MINÉRALE OSSEUSE. L'ÉTUDE DE LA SUBSTANCE MINÉRALE PAR LA MÉTHODE DE DIFFRACTION DES RAYONS X. Acta biol. belg., 1942, 2: 440-444. 5 refs. X-ray diffraction studies indicated that the mineral substance of bone is mainly alpha tricalcium phosphate with the crystallographic properties of an apatite and that calcination causes the alpha tricalcium phosphate and the calcium carbonate of bone to combine in a carbonate apatite molecule. These studies confirm the results of chemical research previously described.

620
Dallemagne, M. J. and Mélon, J. LA CALCIFICATION DES LAMELLES OSSEUSES CONSTITUTIVES DU SYSTÈME HAVERSIEN. Arch. biol., Par., 1945, 56: 243-259. 7 refs. Further studies in polarized light of cross sections of the Haversian systems demonstrated that the light and dark areas observed in the surrounding lamellae were due to differences in crystallite arrangement rather than to differences in the degree of calcification.

621
Engström, A. and Finean, J. B. LOW-ANGLE X-RAY DIFFRACTION OF BONE. Nature, Lond., 1953, 171: 564. 3 refs. A study to determine the arrangement and dimensions of the hydroxylapatite crystallites in bone. Several orders of a fundamental spacing of about 660A were obtained, the width gave an approximate diameter of 60-80A. The long dimension was estimated to be about 3 times the width.

CRYSTAL STRUCTURE AND SURFACE ACTIVITY (Continued)

622
Falkenheim, M., Neuman, W. F. and Hodge, H. C. PHOSPHATE EXCHANGE AS THE MECHANISM FOR ADSORPTION OF THE RADIOACTIVE ISOTOPE BY THE CALCIFIED TISSUES. J. Biol. Chem., 1947, 169: 713-722. 14 refs. Abstracted in: Chem. Abstr., 1947, 41: 7478[a]; Nutrit. Abstr., Aberdeen, 1947-48, 17: No. 4756. "The adsorption of p^{32} in vitro by powdered bone, dentine, enamel and synthetic hydroxyapatite from aqueous phosphate solutions at different concentrations was measured. It is maintained that an exchange of P atoms occurs in which nearly one-fifth of the P atoms of the solid may be involved, and it is suggested that the adsorption occurs on the surface of the ultramicroscopic crystals of hydroxyapatite." - Nutrit. Abstr.

623
Falkenheim, M., Underwood, E. E. and Hodge, H. C. CALCIUM EXCHANGE; THE MECHANISM OF ADSORPTION BY BONE OF CA^{45}. J. Biol. Chem., 1951, 188: 805-817. 17 refs. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 20648; Nuclear Sc. Abstr., 1951, 5: No. 5553.

624
Gassmann, T. DER KRISTALLAUFBAU DER KNOCHEN UND DER ZÄHNE UND SEINE BEZIEHUNGEN ZUR RACHITIS UND ZUR ZAHNKARIES. 24p. Bern, K. J. Wyss, 1937.

625
Henschen, C., Straumann, R. and Bucher, R. ERGEBNISSE RÖNTGENSPEKTROGRAPHISCHER UNTERSUCHUNGEN AM KNOCHEN. I. MITTEILUNG: KRYSTALLITBAN DES ANORGANISCHEN UND DES ORGANISCHEN KNOCHENS. Deut. Zschr. Chir., 1932, 236: 485-514. 36 refs.

626
Hirschman, A., Sobel, A. E. and Fankuchen, I. EFFECT OF DIET ON THE STRUCTURE OF THE INORGANIC CRYSTALLITES OF BONE. Anat Rec., 1948, 100: 675.

627
Hirschman, A., Sobel, A. E., Kramer, B. and Fankuchen, I. AN X-RAY DIFFRACTION STUDY OF HIGH PHOSPHATE BONES. J. Biol. Chem., 1947, 171: 285-291. 3 pl. 17 refs. Abstracted in: Biol. Abstr., Balt., 1948, 22: No. 20273; Chem. Abstr., 1948, 42: 2008[i]. "It is concluded that $CaHPO_4$ is present in the high phosphate bones either adsorbed on the surface of the apatite crystallites or as an integral part of the apatite lattice, but not as an individual crystalline entity."

628
Hodge, H. C. and McKay, J. H. THE AVERAGE MICROHARDNESS OF APATITE. J. Dent. Res., 1937, 16: 453-461. 4 refs.

629
Hodge, H. C., Van Huysen, G., Bonner, J. F. and Van Voorhis, S. N. THE ADSORPTION OF PHOSPHATES AT FORTY DEGREES BY ENAMEL, DENTIN, BONE AND HYDROXYAPATITE AS SHOWN BY THE RADIOACTIVE ISOTOPE. J. Biol. Chem., 1941, 138: 451-457. 12 refs. Abstracted in: Chem. Abstr., 1941, 35: 3694[2]; Biol. Abstr., Balt., 1941, 15: No. 14890.

630
Hutchinson, G. E. MARGINALIA. Am. Scientist, 1947, 35: 117 passim. Bones and teeth: p. 136, 138, 140 and 141. A brief account of Dallemagne and Mélon's work on the molecular structure of bone and teeth.

631
*Melon, J. and Dallemagne, M. J. RECHERCHES RELATIVES À LA FORMATION ET À LA STABILITÉ DE LA BRUSHITE; SON RÔLE DANS L'OSSIFICATION. Bull. Soc. chim. belg., 1947, 56: 180-207. Abstracted in: Chem. Abstr., 1948, 42: 1837[h].

632
Neuman, W. F. BONE AS A PROBLEM IN SURFACE CHEMISTRY. Tr. Conf. Metab. Interrelat., 1950, 2.meet., 32-72. 31 refs. This paper is based on work performed under contract with the United States Atomic Energy Commission at the University of Rochester Atomic Energy Project, Rochester, N. Y. Four chemical properties directly related to the surfaces of bone mineral are demonstrated: isoionic and heteroionic exchange, recrystallization and lattice growth. A discussion follows the address.

633
Neuman, W. F. COLLECTED STUDIES ON HYDROXYL APATITE. 34p. University of Rochester Atomic Energy Project, Rochester, N. Y., 1953. (UR-238). Abstracted in: Nuclear Sc. Abstr., 1953, 7: No. 5495.

634
Neuman, W. F. and Mulryan, B. J. THE EFFECT OF AGE ON RECRYSTALLIZATION OF BONE MINERAL. 10p. University of Rochester Atomic Energy Project, Rochester, N. Y., 1952. (UR-193) 7 refs. Abstracted in: Nuclear Sc. Abstr., 1952, 6: No. 3205.

635
Neuman, W. F. and Mulryan, B. J. THE SURFACE CHEMISTRY OF BONE. IV. FURTHER DATA ON RECRYSTALLIZATION. J. Biol. Chem., 1951, 193: 237-241. 8 refs. "The interaction between powdered bone and radiophosphate buffer was reinvestigated. The slow incorporation of labeled phosphate by the bone mineral was found to require the presence of an aqueous phase. Apparently this slow reaction represents primarily a recrystallization process, rather than a simple diffusion of phosphate ion through the crystal lattice."

636
Neuman, W. F. and Mulryan, B. J. THE SURFACE CHEMISTRY OF BONE. VI. RECRYSTALLIZATION IN VIVO. J. Biol. Chem., 1952, 195: 843-848. 15 refs. "Young rats were given radiophosphate intraperitoneally. At varying time intervals thereafter, the femurs were removed, defatted, and ground. The powdered bone specimens were shaken with inert phosphate buffer. With increasing time after injection, less radiophosphate was desorbable. This was interpreted to mean a greater incorporation of radiophosphate within the mineral crystals of bone. These data support the hypothesis that the recrystallization of bone mineral occurs in vivo."

637
Neuman, W. F. and Weikel, J. H., Jr. THE RECRYSTALLIZATION OF BONE MINERAL. 24p. University of Rochester Atomic Energy Project, Rochester, N. Y., 1954. (UR-314) 19 refs. Abstracted in: Nuclear Sc. Abstr., 1954, 8: No. 2319.

638
*Quartaroli, A. and Fontanelli, G. [THE CHEMICAL STRUCTURE OF TRICALCIUM PHOSPHATE AND OF CALCIUM CARBONATE IN PHOSPHORITES AND BONES] Ann. fac. agrar. univ. Pisa, 1942, 5: 416-435. Abstracted in: Chem. Abstr., 1947, 41: 2520[e].

CRYSTAL STRUCTURE AND SURFACE ACTIVITY (Continued)

639
Reed, C. I. and Reed, B. P. AN ATTEMPTED CORRELATION OF MECHANICAL PROPERTIES OF BONE WITH ANTIRACHITIC HEALING AND WITH MOLECULAR STRUCTURE AS DETERMINED BY X-RAY DIFFRACTION TECHNIQUE. Am. J. Physiol., 1942, 138: 34-41. Abstracted in: Chem. Abstr., 1943, 37: 1454[7]; Biol. Abstr., Balt., 1943, 17: No. 13450.

640
Reed, C. I., Reed, B. P. and Gardner, W. U. THE INFLUENCE OF ESTROGENS ON THE CRYSTAL STRUCTURE OF BONE AS REVEALED BY X-RAY DIFFRACTION STUDIES ON THE FEMORA OF MICE. Endocrinology, 1946, 38: 238-244. 4 refs. "Examination of the femora of healthy mice by x-ray diffraction technique shows that the cortices are composed of crytals of apatite oriented in patterns identical with those previously found for rats. Mice with pellets of estrone implanted subcutaneously showed a disorientation of the apatite crystals in the femoral cortices and in the progressive deposition of a disoriented mixture of calcium carbonate with variable amounts of apatite."

641
Reynolds, L., Hayden, H. S. and Corrigan, K. E. DIFFRACTION STUDIES ON HUMAN BONE. PRELIMINARY REPORT. Am. J. Roentg., 1938, 39: 286-287. 3 refs. "Diffraction patterns of bone from Paget's disease and normal bone show an apatite structure. Diffraction patterns of bone from a case of hyperparathyroidism show a structure different from apatite."

642
Roseberry, H. H., Hastings, A. B. and Morse, J. K. X-RAY ANALYSIS OF BONE AND TEETH. J. Biol. Chem., 1931, 90: 395-407. 2 pl. 9 refs. Abstracted in: Biol. Abstr., Balt., 1935, 9: No. 2982; Chem. Abstr., 1931, 25: 2162. "Since chemical analysis indicates that the chemical composition of untreated bone is similar to that of the mineral dahlite and since x-ray spectrograms indicate the similarity in the crystal structure of bone, enamel and dahlite, it is concluded that the calcium salts of bone and enamel may be represented by the formula: $CaCO_3 \cdot \mu Ca_3(PO_4)_3$, where μ is not less than 2 nor greater than 3. No evidence is found that $CaHPO_4$ or $CaCO_3$ exists in bone or teeth as such."

643
Saupe, E. RÖNTGENSPEKTROGRAPHISCHE STRUKTURUNTERSUCHUNGEN AN BIOLOGISCHEN OBJEKTEN UND MENSCHLICHEN KÖRPERGEWEBEN. Kolloid. Zschr., 1934, 69: 357-363. Abstracted in: Chem. Abstr., 1935, 29: 2819[5].

644
Schinz, H. R. RÖNTGENOGRAPHISCHE FEINSTRUKTURUNTERSUCHUNGEN DER VERKALKUNGEN IM MENSCHLICHEN KÖRPER. Radiol. clin., Basel, 1943, 12: 129-144.

645
Schmidt, W. J. ÜBER HOMOGENE UND SPHÄRITISCHE VERKALKUNG BEI DEN VERSCHIEDENEN ARTEN DES KNOCHENGEWEBES. Naturwissenschaften, 1947, 34: 273-277. 17 refs. Abstracted in: Excerpta med., Sect. 2, 1949, 2: 3082.

646
Stühler, R. DIE LAGERUNG DER ANORGANISCHEN KRISTALLITE IM KNOCHEN. Naturwissenschaften, 1936, 24: 523. 7 refs. Abstracted in: Chem. Abstr., 1937, 31: 442[9].

647
Stühler, R. ÜBER DEN FEINBAU DES KNOCHENS; EINE RÖNTGEN-FEINSTRUKTUR-UNTERSUCHUNG. Fortschr. Röntgenstrahl., 1938, 57: 231-264. Approx. 56 refs.

648
Weikel, J. H., Jr. IONIC EXCHANGE AND RECRYSTALLIZATION OF BONE MINERAL IN VITRO. Fed. Proc., Balt., 1954, 13: 317. An abstract.

649
Weikel, J. H., Jr., Neuman, W. F. and Feldman, I. THE SURFACE CHEMISTRY OF BONE. VIII. ON THE MECHANISM OF IONIC EXCHANGE. 28p. University of Rochester Atomic Energy Project, Rochester, N. Y., 1954. (UR-326) 21 refs. Abstracted in: Nuclear Sc. Abstr., 1954, 8: No. 3663.

650
Wood, N. V., Jr. SPECIFIC SURFACES OF BONE, APATITE, ENAMEL AND DENTINE. Science, 1947, 105: 531-532. 4 refs. Abstracted in: Excerpta med., Sect. 1, 1948, 2: No. 764. "The specific surface (square metres per gram) of apatite prepared by the authors, of dentine and enamel from human teeth and of glycolashed rabbit bone was determined. All were ground to an approximate particle size of 60 mesh. The specific surface of apatite was found to be dentine 2.4, of enamel 1.8, of bone ash 99.3 and of whole teeth approximately 1.59 and 1.77." - Excerpta med.

See:

262	275	284	309	310
314	325	328	329	330
364	383	556	1245	2338
2339	2380	2389	2393	2690

CRYSTALLOGRAPHY

651
Arnold, P. W. THE NATURE OF PRECIPITATED CALCIUM PHOSPHATES. Tr. Faraday Soc., 1950, 46: 1061-1072. 21 refs.

652
Beevers, C. A. and McIntyre, D. B. THE ATOMIC STRUCTURE OF FLUOR-APATITE AND ITS RELATION TO TOOTH AND BONE MATERIAL. Mineralog. Mag., 1946, 27: 254-257. 3 refs. Abstracted in: Chem. Abstr., 1948, 42: 5807[i].

653
Brasseur, H. A. L. and Dallemagne, M. J. LA SYNTHÈSE DES APATITES. Bull. Soc. chim. France, 1949, 2234: D135-D137. 12 refs.

654
Buckley, H. E. CRYSTAL GROWTH. 571p. New York, Wiley, 1951.

655
Gruner, J. W. and McConnell, D. THE PROBLEM OF THE CARBONATE-APATITES. THE STRUCTURE OF FRANCOLITE. Zschr. Krist., 1937, 97: 208-215. 7 refs.

656
Hendricks, S. B. COMMENTS ON THE CRYSTAL CHEMISTRY OF BONE. Tr. Conf. Metab. Interrelat., 1952, 4.Conf., 185-202. Conference discussion: p. 196-212. 15 refs.

657
Hendricks, S. B. and Hill, W. L. NATURE OF BONE AND PHOSPHATE ROCK. Proc. Nat. Acad. Sc. U. S., 1950, 36: 731-737. 19 refs. "The inorganic compounds of bone have a large surface on which carbonate, citrate, Mg, and Na are located. Carbonate is present on entrapped surfaces and not as constituent within the lattice of francolite ... that also by lattice limitation, contains F in excess of the fluorapatite requirements. Enamel is similar to francolite in having entrapped surfaces. The over-all composition, including lattice and surface, of bone is that of a neutral Ca phosphate while enamel is more basic, approximating hydroxylapatite. The compound forming the lattice of bone... might be hydroxylapatite with an excess of phosphate on the surface."

CRYSTALLOGRAPHY (Continued)

658
Hendricks, S. B., Hill, W. L., Jacob, K. D. and Jefferson, M. E. STRUCTURAL CHARACTERISTICS OF APATITE-LIKE SUBSTANCES AND COMPOSITION OF PHOSPHATE ROCK AND BONE AS DETERMINED FROM MICROSCOPICAL AND X-RAY DIFFRACTION EXAMINATIONS. Indust. Engin. Chem., 1931, 23: 1413-1418. 42 refs. Abstracted in: Chem. Abstr., 1932, 26: 671.

659
Hendricks, S. B., Jefferson, M. E. and Mosley, V. M. THE CRYSTAL STRUCTURES OF SOME NATURAL AND SYNTHETIC APATITE-LIKE SUBSTANCES. Zschr. Krist., 1932, 81: 352-369. 17 refs. "A study has been made of the crystal structures of the compounds forming the 'apatite-group',... The X-ray powder diffraction photographs of oxy-apatite, $Ca_{10}O(PO_4)_6$ a hydrate of tricalcium phosphate, $Ca_9(H_2O)_2(PO_4)_6$, and a phosphate compound of bone, $Ca_{10}(CO_3)(H_2O)(PO_4)_6$ differ but slightly from those of hydroxy- and fluor-apatite. It is probable, however, that these compounds more closely simulate pyromorphite in structure. There are structural reasons for supposing that the hydrate of tricalcium phosphate has the composition indicated above and that the phosphate compound of bone is hydrated."

660
*McConnell, D. THE CRYSTAL CHEMISTRY OF CARBONATE APATITES AND THEIR RELATIONSHIP TO THE COMPOSITION OF CALCIFIED TISSUES. J. Dent. Res., 1952, 31: 53-63. Abstracted in: Biol. Abstr., Balt., 1952, 26: No. 18378.

661
McConnell, D. THE NATURE OF ROCK PHOSPHATES, TEETH, AND BONES. J. Washington Acad. Sc., 1952, 42: 36-38. 15 refs.

662
Mehmel, M. ÜBER DIE STRUKTUR DES APATITS. I. Zschr. Krist., 1930, 75: 323-331. 10 refs.

663
*Mélon, J. and Dallemagne, M. J. LA BRUSHITE SYNTHETIQUE. CRITIQUE DES DONNEES CRISTALLOGRAPHIQUES. Ann. Soc. geol. Belg., 1945, 69: B 19.

664
*Mélon, J. and Dallemagne, M. J. LA FORMATION DES CRISTAUX DE PHOSPHATE DICALCIQUE HYDRATE (BRUSHITE). Bull. Soc. chim. Belg., 1946, 55: 38-51. Abstracted in: Chem. Abstr., 1947, 41: 4396f.

665
Náray-Szabó, St. THE STRUCTURE OF APATITE $(CAF)CA_4(PO_4)_3$. Zschr. Krist., 1930, 75: 387-398. 5 refs.

666
Posner, A. S. and Stephenson, S. R. CRYSTALLOGRAPHIC INVESTIGATION OF TRICALCIUM PHOSPHATE HYDRATE. J. Dent. Res., 1952, 31: 371-382. 16 refs. Abstracted in: Biol. Abstr., Balt., 1952, 26: No. 30215. "By use of the hydrothermal bomb technic, crystals of tricalcium phosphate hydrate were grown from about 500 A to 3μ in length. Thus accurate crystallographic evidence was obtained which, when combined with chemical data, suggested that this substance, which is similar to bone, dentin and cementum, might be hydroxy-apatite with phosphoric acid occluded in the ratio of 0.6 moles of H_3PO_4 to one of mole of $Ca_{10}(PO_4)_6(OH)_2$. - Biol. Abstr.

667
Read, W. T. DISLOCATIONS IN CRYSTALS. 228p. New York, McGraw-Hill, 1953.

668
Verma, A. R. CRYSTAL GROWTH AND DISLOCATIONS. 182p. New York, Academic Press, 1953.

ENZYME RELATIONSHIPS

669
Albaum, H. G., Hirshfeld, A. and Sobel, A. E. CALCIFICATION. VI. ADENOSINETRIPHOSPHATE CONTENT OF PREOSSEOUS CARTILAGE. Proc. Soc. Exp. Biol., N. Y., 1952, 79: 238-241. Abstracted in: Excerpta med., Sect. 2, 1953, 6: No. 1332.

670
Albaum, H. G., Hirshfeld, A. and Sobel, A. E. CALCIFICATION. VIII. GLYCOLYTIC ENZYMES AND PHOSPHORYLATED INTERMEDIATES IN PRE-OSSEOUS CARTILAGE. Proc. Soc. Exp. Biol., N. Y., 1952, 79: 682-686.. Abstracted in: Biol. Abstr., Balt., 1952, 26: No. 25188; Chem. Abstr., 1952, 46: 7192i. "Most of the enzymes of glycolysis present in muscle and yeast appear to be present in epiphyseal cartilage. Several of the phosphorylated intermediates of the cycle have been identified by using chromatographic procedure."

671
Baggi, G. and Amorth, G. EFFETTI DELLA SOMMINISTRAZIONE DELLA JALURONIDASI NEI TRAPIANTI OSSEI (STUDIO SPERIMENTALE). Boll. Soc. med. chir. Modena, 1952, 52: 333-336. 9 refs. Abstracted in: Excerpta med., Sect. 9, 1953, 7: No. 2446.

672
Bélanger, L. F. AUTORADIOGRAPHIC VISUALIZATION OF THE ENTRY AND TRANSIT OF S^{35} IN CARTILAGE, BONE, AND DENTINE OF YOUNG RATS AND THE EFFECT OF HYALURONIDASE IN VITRO. Canad. J. Biochem. Physiol., 1954, 32: 161-169. 3 pl. 28 refs. The site of synthesis of sulphated substances in cartilage, bone and dentine was studied; also their fate in these tissues, their relationship with mineralization and their histochemical nature and relative local concentration.

673
Cartier, P. BIOCHIMIE DE L'OSSIFICATION. PHOSPHORYLATION ET CALCIFICATION. C. rend. Soc. biol., 1950, 144: 331-333. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 20646. Sections of fresh metaphyseal cartilage from the long bones of sheep embryos were placed in mineralizing solutions of different composition and the results noted. Three facts were considered important: 1) Adenosine triphosphate (ADT) played a direct role in mineralization of the protein matrix. 2) The phosphatase mechanism appeared not involved in the first stage of mineralization. 3) Mineralization seemed to begin by fixation of secondary calcium phosphate which was later transformed into tricalcium phosphate.

674
Cartier, P. ÉTUDE DES PROTÉASES DE L'OS. II. LES PEPTIDASES. Bull. Soc. chim. biol., Par., 1946, 28: 259-273. 20 refs. The demedullated bones of various mammals (man, cat, calf, rabbit and rat) were extracted with a glycerol solution. The extracts contained a dipeptidase, and an aminopolypeptidase but showed no properties of carboxypolypeptidase (trypsin).

675
Cartier, P. ÉTUDE DES PROTÉASES DE L'OS. III. ORIGINE DES PROTÉASES DE L'OS. Bull. Soc. chim. biol., Par., 1946, 28: 273-276. 7 refs. Abstracted in: Excerpta med., Sect. 2, 1948, 1: No. 539. The demedullated bones of young rabbits, rats and calves were extracted with a glycerol solution and the extracts compared with extracts of the bone marrow. Both extracts contained the same protease properties and the same constituants: catheptase, tryptase in small amount, aminopolypeptidase and dipeptidase.

ENZYME RELATIONSHIPS (Continued)

676
*Cartier, P. MÉCANISME ENZYMATIQUE DE L'OSSIFICATION. Paris, 1952. (Thèse-Univ.)

677
Castellá Bertrán, E. APORTACIONES A LA ONTOGENÍA ENZIMOLÓGICA DE LAS AVES. LA FOSFOMONOESTERASA ÁCIDA, FOSFOMONOESTERASE ALCALINA, RODANASA Y Y [SIC!] CARBONICOANHIDRASA DURANTE LA INCUBACIÓN DEL HUEVO Y DESARROLLO ULTERIOR DE LA GALINA. An. fac. vet. Madr., 1952, 4: 402-606. Abstracted in: Chem. Abstr., 1953, 47: 10668a. A study of the distribution of enzymes in the organs and skeleton of the developing chick embryo and growing hen.

678
Cobb, J. D. RELATION OF GLYCOGEN, PHOSPHORYLASE, AND GROUND SUBSTANCE TO CALCIFICATION OF BONE. A.M.A. Arch. Path., 1953, 55: 496-502. 25 refs. Abstracted in: Chem. Abstr., 1953, 47: 11458g; Excerpta med., Sect. 5, 1954, 7: No. 275.

679
DiStefano, V. and Neuman, W. F. CALCIUM COMPLEXES OF ATP AND ADP AND THEIR SIGNIFICANCE IN CALCIFICATION IN VITRO. 10p. University of Rochester Atomic Energy Project, Rochester N. Y., 1952. (UR-215). 13 refs. Shorter report in: J. Biol. Chem., 1953, 200: 759-763. "Tracer studies using radio-calcium and ion-exchange resins have demonstrated conclusively that calcium forms relatively undissociated complex ions with ATP and ADP. It has also been shown that the phosphatases present in rachitic bone cartilage liberate only small amounts of inorganic phosphate from ATP. These results explain the inhibitory effect of ATP on calcification in vitro."

680
Fawns, H. T. and Landells, J. W. THE APPLICATION OF COLLAGENASE AND HYALURONIDASE TO THE STUDY OF CARTILAGE IN HISTOLOGICAL SECTIONS. J. Physiol., Lond., 1953, 119: Proc., 5-6. 2 refs.

681
Follis, R. H., Jr. CHEMICAL DIFFERENTIATION OF CARTILAGE AND BONE. II. SULFATASE ACTIVITY. Proc. Soc. Exp. Biol., N. Y., 1951, 77: 847-849. 11 refs. Abstracted in: Excerpta med., Sect. 1, 1952, 6: No. 1296; Chem. Abstr., 1951, 45: 9681a. "To test the hypothesis that depolymerization of chondroitin sulphuric acid might occur in the calcification zone, the author tried to detect a sulphatase activity in slices of costal cartilage from young children and puppies. No activity could be found in the calcification zone or in the cartilage; only the presence of blood and marrow cells caused such an activity..." - Excerpta med.

682
Follis, R. H., Jr. and Berthrong, M. HISTOCHEMICAL STUDIES ON CARTILAGE AND BONE. I. THE NORMAL PATTERN. Bull. Johns Hopkins Hosp., 1949, 85: 281-297. pl. 64 refs. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 1831.

683
Gutman, A. B. RELATION OF PHOSPHORYLASE AND PHOSPHATASE TO CALCIFICATION IN CARTILAGE. Tr. Conf. Metab. Aspects Convalesc., 1946, 14.meet., 20-24.

684
Gutman, A. B. and Gutman, E. B. A PHOSPHORYLASE IN CALCIFYING CARTILAGE. Proc. Soc. Exp. Biol., N. Y., 1941, 48: 687-691. 11 refs. Abstracted in: Biol. Abstr., Balt., 1942, 16: No. 11755; Chem. Abstr., 1942, 36: 13728.

685
Gutman, A. B. and YU, T. F. A CONCEPT OF THE ROLE OF ENZYMES IN ENDOCHONDRAL CALCIFICATION. Tr. Conf. Metab. Interrelat., 1950, 2.meet., 167-190. 37 refs. Studies and discussion of the relation between phosphorylative glycogenolysis and endochondral calcification.

686
Gutman, A. B., Warrick, F. B. and Gutman, E. B. PHOSPHORYLATIVE GLYCOGENOLYSIS AND CALCIFICATION IN CARTILAGE. Science, 1942, 95: 461-462. 6 refs. Abstracted in: Chem. Abstr., 1942, 36: 3813[5].

687
Kroon, D. B. THE EFFECT OF THE HYPOFUNCTION OF THE THYROID GLAND, INDUCED BY METHYLTHIOURACIL, ON THE PHOSPHATASE ACTIVITY OF SOME ORGANS AND ON THE PROCESS OF OSSIFICATION IN THE RAT AND IN THE GUINEA-PIG. Acta endocr., Kbh., 1949, 2: 227-248. 11 refs. Abstracted in: Biol. Abstr., Balt., 1950, 24: No. 12352; Chem. Abstr., 1950, 44: 2126b.

688
Lacapère, J., Drieux, H. and Delaville, G. ÉTUDES HISTOLOGIQUES ET CHIMIQUES SUR LE DISQUE INTERVERTÉBRAL. Presse méd., 1951, 59: 1400-1403. Abstracted in: Excerpta med., Sect. 2, 1952, 5: No. 3277.

689
Laskin, D. M. and Engel, M. B. METABOLISM OF BONE IN RABBIT UNDER THE INFLUENCE OF PARATHYROID EXTRACT. Fed. Proc., Balt., 1954, 13: No. 1706. An abstract. "The resorption of bone following administration of parathyroid extract may be related to this change in the activity of the intracellular dehydrogenases." - Fed. Proc.

690
Levine, M. D. and Follis, R. H., Jr. THE LECITHINASE ACTIVITY OF FETAL CARTILAGE. Tr. Conf. Metab. Interrelat., 1949, 1. Conf., 33-40. Conference discussion: p. 37-40. 8 refs.

691
Leynse, B. INVESTIGATIONS ON THE GLYCOLYTIC ENZYME SYSTEM OF CALCIFYING BONES. Acta physiol. pharm. neerl., 1951-1952, 2: 442-445. 4 refs. Abstracted in: Chem. Abstr., 1953, 47: 10088d.

692
Liebknecht, W. L. ÜBER DIE AUFSPALTUNG DER ADENYLPYROPHOSPHORSAURE DURCH KNOCHENPHOSPHATASE. Biochem. Zschr., 1939, 303: 96-100. 7 refs.

693
Lillie, R. D., Greco, J. and Laskey, A. HISTOCHEMICAL STUDIES WITH MALT DIASTASE: PARTIAL SEPARATION OF THE FRACTIONS DESTROYING CYTOPLASMIC BASOPHILIA (RIBONUCLEIC ACID) AND THE METACHROMASIA OF CARTILAGE. Anat. Rec., 1949, 103: 635-647. 4 refs. Abstracted in: Chem. Abstr., 1949, 43: 8406a.

694
Loeper, M., Lesure, A. and Tonnet, J. SUR QUELQUES FERMENTS DU CARTILAGE. C. rend. Soc. biol., 1934, 116: 116-117. 6 refs. Abstracted in: Chem. Abstr., 1934, 28: 5085[7].

695
Lorenzi, L. COCARBOSSILASI E β-GLICURONIDASI NEL TESSUTO OSSEO. Boll. Soc. ital. biol. sper., 1952, 28: 1342-1343. 12 refs. Abstracted in: Chem. Abstr., 1953, 47: 7619h.

ENZYME RELATIONSHIPS (Continued)

696
Lutwak-Mann, C. ENZYME SYSTEMS IN ARTICULAR CARTILAGE. Biochem. J., Lond., 1940, 34: 517-527. 14 refs. Abstracted in: Chem. Abstr., 1940, 34: 5472[3]; Biol. Abstr., Balt., 1941, 15: No. 150.

697
Paff, G. H. and Seifter, J. THE EFFECT OF HYALURONIDASE ON BONE GROWTH IN VITRO. Anat. Rec., 1950, 106: 525-537. pl. 4 refs. Abstracted in: Excerpta med., Sect. 1, 1951, 5: No. 272. Findings suggest that hyaluronidase may be important in the removal of hyaline cartilage in the process of endochondral bone formation. Further studies are being made to determine the availability of hyaluronidase at sites of endochondral bone formation.

698
Perkins, H. R. and Dixon, T. F. PARATHYROID AND BONE CITROGENASE. Science, 1953, 118: 139-140. 6 refs. Abstracted in: Chem. Abstr., 1953, 47: 11419[h]; Excerpta med., Sect. 3, 1954, 8: No. 236. A study of "the citrate content and citrogenase activity of bone in parathyroidectomized and normal rats, and in normal rats injected with parathyroid extract."

699
Polonovski, M. and Cartier, P. ETUDE DES PROTÉASES DE L'OS. I. LES PROTÉINASES. Bull. Soc. chim. biol., Par., 1946, 28: 247-258. 23 refs. Abstracted in: Chem. Abstr., 1947, 41: 3828[a]. In young rabbits the demedullated leg bones were extracted with a glycerol solution. The extract contained a proteinase with cathepsin-like properties. The properties of trypsin were also observed in the extract but in lesser amount.

700
*Reis, J. [5-NUCLEOTIDASE] Acta biol. exp., Warsz., 1937, 11: 122-123. Abstracted in: Chem. Abstr., 1938, 32: 9101[4].

701
Robison, R. and Soames, K. M. THE POSSIBLE SIGNIFICANCE OF HEXOSEPHOSPHORIC ESTERS IN OSSIFICATION. VIII. CALCIFICATION IN VITRO. Biochem. J., Lond., 1930, 24: 1922-1926. pl. 9 refs. Abstracted in: Biol. Abstr., Balt., 1933, 7: No. 18199.

702
Robison, R., MacLeod, M. and Rosenheim, A. H. THE POSSIBLE SIGNIFICANCE OF HEXOSEPHOSPHORIC ESTERS IN OSSIFICATION. IX. CALCIFICATION IN VITRO. Biochem. J., Lond., 1930, 24: 1927-1941. pl. 11 refs. Abstracted in: Biol. Abstr., Balt., 1933, 7: No. 18285

703
Roche, J., Nguyen-Van Thoai, G. I. and Pin, P. RECHERCHES SUR L'OSSIFICATION. XIV. SUR LE RÔLE ÉVENTUEL DE LA PHOSPHORYLASE OSSEUSE DANS LA FORMATION D'ESTERS SERVANT DE SUBSTRAT À LA PHOSPHATASE. Bull. Soc. chim. biol., Par., 1951, 33: 286-290. 8 refs. Abstracted in: Excerpta med., Sect. 1, 1952, 6: No. 1975; Nutrit. Abstr., Aberdeen, 1951-52, 21: No. 3805.

704
Rutishauser, E. and Majno, G. ÉTUDE DES PROTEASES OSSEUSES ET SÉRIQUES. L'HYPERPARATHYROÏDISME EXPÉRIMENTAL ET SES RÉPERCUSSIONS SUR LA MUQUEUSE GASTRIQUE ET SUR LE TAUX DES PROTÉASES SÉRIQUES. Presse méd., 1953, 61: 286-288. 17 refs.

705
Sarles, H. CINÉTIQUE DE L'ACTION DE LA PHOSPHOMONOESTÉRASE ALCALINE D'OS DE FOETUS ET SPÉCIFICITÉ D'ORGANE DES PHOSPHATASES. C. rend. Soc. biol., 1953, 147: 1561-1564. 4 refs.

706
Steenbock, H., Krieger, C. H., Wiest, W. G. and Pileggi, V. J. VITAMIN D AND INTESTINAL PHYTASE. J. Biol. Chem., 1953, 205: 993-999. 29 refs. Abstracted in: Chem. Abstr., 1954, 48: 3502[e].

707
Sumner, J. B. and Myrbäck, K., eds. ENZYMES. New York, The Academic Press, 1950-
See particularly: Phosphatase, v.1, pt. 1, p. 473-510; Phosphorlayses, v.1, pt. 2, p. 1014-1039.

708
Waldman, J. CALCIFICATION OF HYPERTROPHIC EPIPHYSEAL CARTILAGE IN VITRO FOLLOWING INACTIVATION OF PHOSPHATASE AND OTHER ENZYMES. Proc. Soc. Exp. Biol., N. Y., 1948, 69: 262-263. 7 refs. Abstracted in: Excerpta med., Sect. 2, 1949, 2: No. 3627; Biol. Abstr., Balt., 1949, 23: No. 11114.

709
Waldman, J. EFFECT OF INACTIVATION OF ENZYMES ON CALCIFICATION OF CARTILAGE IN VITRO. Tr. Conf. Metab. Interrelat., 1950, 2.meet., 203-220. 9 refs. Report and discussion of experiments on sections of rat bone.

710
Zawisch, C. DIE BEEINFLUSSUNG DES KNOCHENWACHSTUMS DURCH FERMENTWIRKUNG. Wien. klin. Wschr., 1932, 45: 321-326.

711
Zawisch, C. BEEINFLUSSUNG DES KNOCHENWACHSTUMS DURCH FERMENTWIRKUNG; HISTOLOGISCHE UNTERSUCHUNG VON KNOCHENBEHANDELTER TIERE. Zschr. mikr. anat. Forsch., 1931, 26: 173-215. 3 refs.

712
Zawisch, C. ÜBER KNOCHENWACHSTUM UND DESSEN BEEINFLUSSUNG DURCH FERMENTWIRKUNG. Zschr. mikr. anat. Forsch., 1930, 23: 169-226. 10 refs. Abstracted in: Biol. Abstr., Balt., 1932, 6: No. 21679.

713
Zawisch, C. WIRKSTOFFE UND IHRE TÄTIGKEIT IM AUFBAU VON KNORPEL UND KNOCHEN. Zschr. mikr. anat. Forsch., 1937, 42: 595-655. Approx. 30 refs. The effects of, 1) an osteoplastic enzyme, 2) Ketose-monophosphatase, and 3) an adrenalin-like material, were studied when injected into rabbits. Both enzymes increased bony tissue and diminished vascularity. The adrenalin-like substance increased osteoclasis.

See:

107 108 109 934 1229

ENZYME RELATIONSHIPS - IN REGENERATION AND REPAIR

714
Fiocca, S. and Rusconi, A. RICERCHE SULLA METACROMASIA. NOTA II. AZIONE DELLA JALURONIDASI SULLA EVOLUZIONE DELLE CALLO DI FRATTURA E SUL COMPORTAMENTO DELLE SOSTANZE METACROMATICHE. Arch. chir. ortop., 1952, 17: 219-220. 7 refs.

715
Greenberg, D. M. and Mohamed, M. S. EFFECT OF LOWERED BLOOD SUPPLY AND OF GLUCOSE-1-PHOSPHATE ON HEALING OF BONE FRACTURES. Proc. Soc. Exp. Biol., N. Y., 1944, 57: 203-205. 10 refs. Abstracted in: Biol. Abstr., Balt., 1945, 19: No. 4651; Chem. Abstr., 1945, 39: 982[9]

ENZYME RELATIONSHIPS - IN REGENERATION AND REPAIR (Continued)

716
Kuwabara, G. ÜBER DEN STOFFWECHSEL DES KNORPEL UND KALLUSGEWEBES. J. Biochem., Tokyo, 1932, 16: 389-402. 12 refs. Abstracted in: Chem. Abstr., 1933, 27: 1020. "No oxidase was found either in cartilage or callus tissue. Cartilage possesses a much greater dehydrogenase activity than does bone. Furthermore, the epiphyseal cartilage of healthy rabbits has a more active dehydrogenase than that of rachitic rabbits. ... Both the glucolytic and the dehydrogenase activity of the callus attain their highest value at the time when calcification is most active. Both callus tissue and cartilage derive energy from glucolysis." - Chem. Abstr.

717
Landoff, G. A. EXPERIMENTAL STUDY OF THE EFFECTS OF THE ADMINISTRATION OF HYALURONIDASE ON THE HEALING OF FRACTURES. Acta orthop. scand., 1951, 21: 5-12. Abstracted in: Excerpta med., Sect. 2, 1952, 5: No. 4419; Biol. Abstr., Balt., 1953, 27: No. 27810. Hyaluronidase retarded bone repair. This retardation is thought to be due to the enzyme's inhibiting action on the deposition of bone salts in callus tissue.

718
Li Voti, P. RICERCHE SULLA LOCALIZZAZIONE DELLA FOSFATASI ALCALINA NEL CALLO OSSEO. Gior. ital. chir., 1949, 5: 478-487. 70 refs. Abstracted in: Excerpta med., Sect. 5, 1950, 3: No. 2331.

719
Rutishauser, E., Majno, G. and Perrottet, E. LES PROTÉASES DU TISSU OSSEUX NORMAL ET PATHOLOGIQUE. NOTE PRÉLIMINAIRE. Arch. sc., Genève, 1951, 4: 250-252. 3 refs. Abstracted in: Excerpta med., Sect. 5, 1952, 5: No. 2904. In normal and rachitic rats of various ages and in adult rabbits determinations were made of the protease activity in whole and fractured bones and the fracture callus. Differences were attributed to variations in the number of cells.

ENZYME RELATIONSHIPS - PHOSPHATASE

720
Armstrong, A. R. and Banting, F. G. THE SITE OF FORMATION OF THE PHOSPHATASE OF SERUM. Canad. M. Ass. J., 1935, 33: 243-246. 8 refs. The data obtained in this study support the contention that bone is the sole source of serum phosphatase.

721
Basso, R. IL COMPORTAMENTO DELLA FOSFATASI SERICA DOPO INTERVENTI OPERATORIO SULLE OSSA. Fisiol. & med., Roma, 1950, 17: 165-171. 15 refs. Postoperative serum phosphatase determinations, made in 16 patients at regular intervals for 30 days, showed only slight changes from preoperative levels. This was interpreted as indicating that serum phosphatase was not a measure of osteoblast activity nor of bone phosphate activity.

722
Bélanger, L. F. DETECTION OF PHOSPHATASE ACTIVITY IN POLARIZED LIGHT FOLLOWING GLYCEROPHOSPHATE INCUBATION. Proc. Soc. Exp. Biol., N. Y., 1951, 77: 266-269. 4 refs. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 35787. Description of method. Preliminary studies with this technique indicated that 1) phosphatase activity in growing bones and teeth is localized in areas, not necessarily of mineral deposition; 2) phosphatase activity originates in cytoplasma cells; 3) it increases with cell differentia-

723
Belfanti, S., Contardi, A. and Ercoli, A. PHOSPHATASES. THE INFLUENCE OF SOME ELECTROLYTES ON THE PHOSPHATASES OF ANIMAL TISSUE. PHOSPHATASES OF THE LIVER, KIDNEY, SERUM AND BONES OF THE RABBIT. Biochem. J., Lond., 1935, 29: 517-527. 22 refs. Abstracted in: Chem. Abstr., 1935, 29: 5138[9]; Nutrit. Abstr., Aberdeen, 1935-36, 5: No. 352.

724
Bischoff, G. and Loeschke, A. DIE WIRKUNG DER TOXISCHEN KOMPONENTE DES BESTRAHLTEN ERGOSTERINS (CALCINOSEFAKTORS) AUF DIE KNOCHENPHOSPHATASE. Zschr. Kinderh., 1932, 52: 349-357. 13 refs. Abstracted in: Nutrit. Abstr., 1932-33, 2: No. 162; Chem. Abstr., 1932, 26: 3014.

725
Bodansky, O. THE ACCELERANT EFFECT OF α-AMINO ACIDS ON THE ACTIVITY OF BONE PHOSPHATASE. J. Biol. Chem., 1936, 114: 273-288. 33 refs. Abstracted in: Chem. Abstr., 1936, 30: 4883[7]; Nutrit. Abstr., Aberdeen, 1936-37, 6: No. 1832.

726
Bodansky, O. ARE THE PHOSPHATASES OF BONE, KIDNEY, INTESTINE AND SERUM IDENTICAL? THE USE OF BILE ACIDS IN THEIR DIFFERENTIATION. J. Biol. Chem., 1937, 118: 341-362. 37 refs.

727
Bodansky, O. and Strachman, N. THE INFLUENCE OF MAGNESIUM AND COBALT ON THE INHIBITION OF PHOSPHATASES OF BONE, INTESTINE, AND OSTEOGENIC SARCOMA BY AMINO ACIDS. J. Biol. Chem., 1949, 179: 81-102. 30 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1949-50, 19: No. 2157.

728
Bodansky, O. and Strachman, N. THE INHIBITORY EFFECT OF DL-ALANINE, L-GLUTAMIC ACID, L-LYSINE, AND L-HISTIDINE ON THE ACTIVITY OF INTESTINAL, BONE, AND KIDNEY PHOSPHATASES. J. Biol. Chem., 1948, 174: 465-476. 16 refs. Abstracted in: Chem. Abstr., 1948, 42: 6863[f]; Biol. Abstr., Balt., 1949, 23: No. 6111.

729
Borghese, E. LA FOSFATASI ALCALINA NEGLI STADI PIU PRECOCI DELL'OSSIFICAZIONE. Boll. Soc. ital. biol. sper., 1952, 28: 801-803. 6 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1953, 23: No. 3056; Brit. Abstr., Sect. AIII, 1953, p. 627. Mouse embryos of 14 to 17 days were used in this study on the behavior of alcaline phosphatase in the earliest stages of ossification of the cartilage of the extremities and of the vertebrae. The findings are compared with those of other authors.

730
Borghese, E. LA FOSFATASI ALCALINA NELLE PRIME FASI DELL'OSSIFICAZIONE. Zschr. Anat. Entw., 1953, 116: 610-625. 42 refs. Abstracted in: Excerpta med., Sect. 1, 1954, 8: No. 107.

731
Cappellin, M. AZIONE DELLE FOSFATASI OSSEE SULLA OSTEOGENESI IN VITRO. Sperimentale, 1948, 99: 133-145. 22 refs. Abstracted in: Chem. Abstr., 1949, 43: 3050[h]. Femur cartilage from chick embryos of 6 days' incubation, cultured in vitro in a medium of plasma and embryo extract, developed normally but similar explants cultured in the same medium with the addition of bone phosphatase extract showed retarded growth and degenerative changes. This inhibiting action of the enzyme is attributed to protein substances which contaminated the phosphatase, obtained by Robinson's method of extraction.

ENZYME RELATIONSHIPS - PHOSPHATASE (Continued)

732
Cappellin, M. CARTILAGINE E FOSFATASI ALCALINE. Atti Soc. med. chir. Padova, 1947, 86-91. 8 refs.

733
Cappellin, M. FOSFATASI OSSEA E OSTEOGENESI IN VITRO. Boll. Soc. ital. biol. sper., 1947, 23: 915-917. 3 refs. Abstracted in: Excerpta med., Sect. 1, 1949, 3: No. 556.

734
Cappellin, M. SUL SIGNIFICATO FUNZIONALE DELLE CELLULE CARTILAGINEE DELLA LINEA DI CONIUGAZIONE. Rass. biol. umana, 1948, 3: 35-46. 17 refs. A histological demonstration of phosphatases in the cartilage cells of the epiphyseal lines in mice.

735
Cartier, P. MÉCANISME ENZYMATIQUE DE L'OSSIFICATION. Exposés ann. biochim. méd., Par., 1952, 14: 73-86. 6 refs. The theories of Robison and Gutman are reviewed and the author's findings are compared with theirs.

736
Cartier, P. and Picard, J. BIOCHIMIE DE L'OSSIFICATION: RÔLE DE LA PHOSPHATASE ALCALINE DANS LES PREMIERS STADES DE L'OSSIFICATION. C. rend. Soc. biol., 1951, 145: 274-276. An earlier experiment was repeated with the following changes: Sections of epiphyseal cartilage were used, a very active preparation of bone phosphatase was added to the solution and the experiment was performed at different optimium pH levels. Results confirmed the earlier findings.

737
Cloetens, R. IDENTIFICATION DE DEUX PHOSPHATASES "ALCALINES" DANS LES ORGANES ANIMAUX. Enzymologia, Haag, 1939, 6: 46-56. 8 refs. Abstracted in: Chem. Abstr., 1939, 33: 6366[6].

738
Combs, G. F., Norris, L. C. and Heuser, G. F. THE INTERRELATIONSHIP OF MANGANESE, PHOSPHATASE AND VITAMIN D IN BONE DEVELOPMENT. J. Nutrit., 1942, 23: 131-140. 12 refs. Abstracted in: Biol. Abstr., Balt., 1942, 16: No. 14420; Chem. Abstr., 1942, 36: 2590[4].

739
Common, R. H. SERUM PHOSPHATASE IN THE DOMESTIC FOWL. Nature, Lond., 1934, 133: 572. 3 refs. Abstracted in: Chem. Abstr., 1934, 28: 4435[8].

740
Deltour, G. H. and Villiaumey, J. ACTION DE L'ACÉTATE DE DÉSOXYCORTICOSTÉRONE SUR L'ACTIVITÉ PHOSPHATASIQUE DE L'OS ÉPIPHYSAIRE DU RAT. Ann. endocr., Par., 1952, 13: 179-181. 7 refs. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 22173; Excerpta med., Sect. 3, 1952, 6: No. 2151.

741
De Luca, G. AZIONE DELLA TIROIDE SUI VALORI DELL'ATTIVITÀ FOSFATASICA DEL SIERO E DELLE OSSA E SULLA CALCIFICAZIONE SCHELETRICA. Ormoni, 1940, 2: 203-220. 62 refs. Abstracted in: Biol. Abstr., Balt., 1941, 15: No. 4120.

742
De Rienzo, A. AZIONE DELLA FOSFATASI DELLE OSSA SULL'ACIDO GLICEROFOSFORICO. Boll. Soc. ital. biol. sper., 1930, 5: 1034-1036. 3 refs. Abstracted in: Chem. Abstr., 1931, 25: 2159.

743
Dikshit, P. K. and Chitre, R. G. STUDIES IN EXPERIMENTAL RICKETS. THE SOURCE OF SERUM ALKALINE PHOSPHATASE IN RACHITIC ALBINO RATS. Indian J. M. Res., 1950, 38: 41-48. Abstracted in: Biol. Abstr., Balt., 1951, 26: No. 36036. Findings indicate that the bone and serum alkaline phosphatases are not identical.

744
DiStefano, V. SELECTED STUDIES ON THE ROLE OF BONE PHOSPHATASE IN CALCIFICATION. 98p. University of Rochester Atomic Energy Project, Rochester, N. Y., 1954. (UR-272). 85 refs. Abstracted in: Nuclear Sc. Abstr., 1954, 8: No. 972.

745
Eremin, G. P. and Kasperskaia, Z. A. VLIIANIE RAZLICHNOGO KOLICHESTVA BELKA V PITANII NA AKTIVNOST' FOSFATAZY KOSTEĬ U RASTUSHCHIKH ZHIVOTNYKH. [THE INFLUENCE OF PROTEIN INTAKE ON THE PHOSPHATASE ACTIVITY IN THE BONES OF GROWING ANIMALS] Biokhimiia, 1950, 15: 128-133. 7 refs. Abstracted in: Chem. Abstr., 1950, 44: 7400g. In rats on a diet deficient in protein content (casein 3.5%) bone phosphatase activity decreased 2.5 times more than in groups on diets of 18 and 35% protein content. Removal of bone marrow from the epiphysis did not alter enzyme activity but removal from the diaphysis caused a reduction in activity of the phosphatase.

746
Fabisch, W. ÜBER DEN PHOSPHATASEGEHALT NORMALER UND RACHITISCHER RATTENKNORPEL. Biochem. Zschr., 1932, 254: 158-169. 6 refs. The phosphatase content of cartilage of normal, rachitic and irradiated ergosterol treated rats was the same. This finding opposes the theory that low serum P in rickets may be explained on the basis of change in the phosphatase content in cartilage.

747
Fell, H. B. and Robison, R. THE DEVELOPMENT AND PHOSPHATASE ACTIVITY IN VIVO AND IN VITRO OF THE MANDIBULAR SKELETAL TISSUE OF THE EMBRYONIC FOWL. Biochem. J., Lond., 1930, 24: 1905-1921. 3 pl. 9 refs. Abstracted in: Biol. Abstr., Balt., 1933, 7: No. 18183; Chem. Abstr., 1931, 25: 3040.

748
Filippon, S. and Morgano, G. SUL COMPORTAMENTO DELLA FOSFATASI ALCALINA NEL DIABETE SPERIMENTALE. Arch. Maragliano pat. clin., 1950, 5: 123-126. 15 refs. Abstracted in: Chem. Abstr., 1951, 45: 10376[d].

749
Follis, R. H., Jr. INORGANIC COMPOSITION AND PHOSPHATASE ACTIVITY OF HUMAN CARTILAGE IN RELATION TO MORPHOLOGICAL DIFFERENTIATION. Fed. Proc., Balt., 1949, 8: 355. An abstract.

750
Follis, R. H., Jr. PHOSPHATASE ACTIVITY OF CARTILAGE AND PERIOSTEUM WITH VARIOUS SUBSTRATES. Bull. Johns Hopkins Hosp., 1950, 87: 181-185. 16 refs. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 22711. "Extracts of costochondral hypertrophic cartilage and periosteum were tested quantitatively for phosphatase activity at alkaline, neutral and acid pH using various substrates. No differences were found in the 2 types of tissue studied. It would appear that both cartilage and periosteum contain, in addition to 'alkaline phosphatase,' an acid phosphatase acting on meta and pyrophosphate, as well as an enzyme attacking depolymerized yeast nucleic acid most readily in the neutral medium."

ENZYME RELATIONSHIPS - PHOSPHATASE (Continued)

751
Follis, R. H., Jr. STUDIES ON THE CHEMICAL DIFFERENTIATION OF DEVELOPING CARTILAGE AND BONE. I. GENERAL METHOD. ALKALINE PHOSPHATASE ACTIVITY. Bull. Johns Hopkins Hosp., 1949, 85: 360-369. 14 refs. Abstracted in: Excerpta med., Sect. 5, 1950, 3: No. 1981; Biol. Abstr., Balt., 1951, 25: No. 1830.

752
Gomori, G. CALCIFICATION AND PHOSPHATASE. Am. J. Path., 1943, 19: 197-209. pl. 18 refs. "Calcification of living or recently necrosed tissues seems invariably to involve phosphatase activity. On the other hand, calcification of hyaline connective tissue occurs without any phosphatase action. Acid phosphatase plays no role in calcification."

753
Gould, B. S. and Shwachman, H. BONE AND TISSUE PHOSPHATASE IN EXPERIMENTAL SCURVY AND STUDIES ON THE SOURCE OF SERUM PHOSPHATASE. Am. J. Physiol., 1942, 135: 485-491. 12 refs. Abstracted in: Biol. Abstr., Balt., 1942, 16: No. 18227.

754
Greep, R. O., Fischer, C. J. and Morse, A. ALKALINE PHOSPHATASE IN ODONTOGENESIS AND OSTEOGENESIS AND ITS HISTOCHEMICAL DEMONSTRATION AFTER DEMINERALIZATION. J. Am. Dent. Ass., 1948, 36: 427-442. 15 refs. Abstracted in: Biol. Abstr., Balt., 1949, 23: No. 4094; Excerpta med., Sect. 2, 1949, 2: No. 1336.

755
Grugni, C. and Ferraris, R. FOSFATASI ACIDA E OSSIFICAZIONE ETEROTOPICA NELLA LINGUA DA INNESTI AUTO- E OMOPLASTICI DI MIDOLLO OSSEO. Boll. Soc. ital. biol. sper.,1949 (1950), 25: 1084-1085. 4 refs.

756
Grugni, C., Prina, C. and Dragoni, G. MIDOLLO OSSEO E FOSFATASI NELLE OSSIFICAZIONI ETEROTOPICHE. Arch. sc. med., Tor., 1951, 91: 487-508. 18 refs. Abstracted in: Chem. Abstr., 1951, 45: 8621[c].

757
Gutman, A. B. and Jones, B. INHIBITION BY CYANIDE OF SERUM ALKALINE PHOSPHATASE IN NORMAL MAN, OBSTRUCTIVE JAUNDICE AND SKELETAL DISORDERS. Proc. Soc. Exp. Biol., N. Y., 1949, 71: 572-575. 9 refs.

758
Gutman, A. B. and Yü, T. F. FURTHER CONSIDERATION OF THE EFFECTS OF BERYLLIUM SALTS ON IN VITRO CALCIFICATION OF CARTILAGE. Tr. Conf. Metab. Interrelat., 1951, 3.Conf., 90-104. Conference discussion: p. 102-104. Abstracted in: Chem. Abstr., 1952, 46: 11374[i].

759
Hennig, W. ÜBER EINIGE ÄNDERUNGEN DER PHOSPHATASEAKTIVITÄT DES KNOCHENS BEI EXPERIMENTELLER RACHITIS. Arch. exp. Path., Lpz., 1950, 212: 105-106. Abstracted in: Excerpta med., Sect. 2, 1951, 4: No. 5953; Chem. Abstr., 1953, 47: 8887[i].

760
Hiatt, H. H., Marks, P. A. and Shorr, E. EFFECTS OF INHIBITORS ON CALCIUM DEPOSITION IN CARTILAGE IN VITRO. J. Biol. Chem., 1953, 204: 187-195. Abstracted in: Biol. Abstr., Balt., 1954, 28: No. 13014; Brit. Abstr. M. Sc., 1954, p. 645.

761
Kay, H. D. PHOSPHATASE IN GROWTH AND DISEASE OF BONE. Physiol. Rev., 1932, 12: 384-422. Abstracted in: Chem. Abstr., 1932, 26: 4648.

762
King, E. J. and Hall, G. E. THE PHOSPHATASE OF FETAL BONE. Canad. M. Ass. J,, 1931, 25: 44-46. 5 refs.

763
Kochakian, C. D. and Terepka, A. R. EFFECT OF PARATHYROID EXTRACT ON TISSUE ENZYMES AND SERUM AND URINARY PHOSPHORUS. Am. J. Physiol., 1951, 165: 142-148. 24 refs. Abstracted in: Chem. Abstr., 1951, 45: 6276[a]; Biol. Abstr., Balt., 1952, 26: No. 17937. The kidneys, heart, adrenals and bones of rats were studied.

764
Kodama, S. and Takamatsu, H. HISTOLOGISCHE UND BIOCHEMISCHE STUDIEN ÜBER DIE PHOSPHATASE BEI AVITAMINOSEN. I. PHOSPHATASE UND IHRE BIOLOGISCHE BEDEUTUNG BEI RACHITIS. Tr. Soc. path. jap., 1939, 29: 498-501.

765
Kubo, M. and Suyama, Y. ÜBER DIE GEWEBSPHOSPHATASE BEI ACIDOTISCHEN KNOCHENVERÄNDERUNGEN DER MIT SCHWEFEL GEFÜTTERTEN RATTE. Tr. Soc. path. jap., 1936, 26: 682-686.

766
Kuwabara, G. EINFLUSS DES CALCIUM AUF DIE KNORPELPHOSPHATASE. J. Biochem., Toyko, 1932, 16: 403-406. 5 refs.

767
Lorch, I. J. ALKALINE PHOSPHATASE AND THE MECHANISM OF OSSIFICATION. J. Bone Surg., 1949, 31B: 94-99. 20 refs. Abstracted in: Excerpta med., Sect. 2, 1949, 2: No. 5900.

768
Lorch, I. J. THE DISTRIBUTION OF ALKALINE PHOSPHATASE IN RELATION TO CALCIFICATION IN SCYLIORHINUS CANICULA. DEVELOPMENT OF THE ENDOSKELETON. Q. J. Micr. Sc., Lond., 1949, 90: 381-390. pl. 15 refs. Dogfish embryos of 18-115 mm. were studied histochemically. "Phosphatase was first noted in the chondrocytes and perichondrium at 47 mm. and in the cartilage matrix at 58 mm. Calcification occurred first in the neural plates at 58 mm. and in the skull at 74 mm. No calcification was observed in zones devoid of extracellular phosphatase. As the intensity of calcification increased, the amount of phosphatase tended to drop. It is concluded that in elasmobranchs, as in higher animals, extracellular phosphatase is an essential precursor of calcification."

769
Lorch, I. J. THE DISTRIBUTION OF ALKALINE PHOSPHATASE IN THE SKULL OF THE DEVELOPING TROUT. Q. J. Micr. Sc., Lond., 1949, 90: 183-207. 2 pl. 24 refs. "Extracellular phosphatase is always associated with ossification or fibre formation. No deposition of calcium salts in the absence of phosphatase was observed. Alkaline phosphatase is probably connected with histogenesis in general apart from its special function in calcification."

770
*Lorch, I. J. A HISTOCHEMICAL STUDY OF ALKALINE PHOSPHATASE IN RELATION TO CALCIFICATION. 1948. (Thesis, Ph.D- Univ. Lond.)

771
Lorch, I. J. LOCALIZATION OF ALKALINE PHOSPHATASE IN MAMMALIAN BONES. Q. J. Micr. Sc., Lond., 1947, 88: 367-381. pl. 26 refs. Abstracted in: Excerpta med., Sect. 1, 1949, 3: No. 85.

ENZYME RELATIONSHIPS - PHOSPHATASE (Continued)

772
Low, M. B., Wilson, R. O. and Aub, J. C. PHOSPHATASE ACTIVITY OF THE BONES AND KIDNEYS IN THYROTOXICOSIS. Proc. Soc. Exp. Biol., N. Y., 1934, 31: 447-450. 11 refs. Abstracted in: Chem. Abstr., 1934, 28: 2054[3]. The kidneys were increased in size and the average phosphatase content per gram of tissue was slightly diminished. The phosphatase activity of the bones was the same as that of controls.

773
*Ludwig, K. S. VITAMIN A-MANGEL UND ÜBERDOSIERUNG UND IHRE BEZIEHUNGEN ZUM GEHALT AN ALKALISCHER PHOSPHATASE DER EPIPHYSENFUGE. Internat. Zschr. Vitaminforsch., Bern, 1953, 25: 98-103. Abstracted in: Chem. Abstr., 1954, 48: 828g; Biol. Abstr., Balt., 1954, 28: No. 10537.

774
McKelvie, A. M. and Mann, F. C. THE ROLE OF ALKALINE PHOSPHATASE IN OSTEOGENESIS AFTER TRANSPLANTATION OF BONE. Proc. Mayo Clin., 1948, 23: 449-454. 18 refs. The literature is reviewed, the author's unpublished work with rabbits discussed, and the hypothesis advanced that alkaline phosphatase is concerned more with formation of the fibrocollagenous framework of bone than with the impregnation of this framework with calcified salts.

775
MacLeod, M. and Robison, R. THE HYDROLYSIS OF HEXOSEDIPHOSPHORIC ESTER BY BONE PHOSPHATASE. A NEW FRUCTOSEMONOPHOSPHATE. Biochem. J., Lond., 1933, 27: 286-297. 17 refs. Abstracted in: Chem. Abstr., 1933, 27: 3957.

776
Madsen, N. B. and Tuba, J. ON THE SOURCE OF THE ALKALINE PHOSPHATASE IN RAT SERUM. J. Biol. Chem., 1952, 195: 741-750. 27 refs. Abstracted in: Chem. Abstr., 1953, 47: 10650[c]; Nutrit. Abstr., Aberdeen, 1952, 22: No. 2184. Results of this study with rats indicated that the major portion of the serum alkaline phosphatase is derived from the intestine. Bone is probably the source of that portion not supplied by the intestine.

777
Majno, G. and Rouiller, C. DIE ALKALISCHE PHOSPHATASE IN DER BIOLOGIE DES KNOCHENGEWEBES. HISTOCHEMISCHE UNTERSUCHUNGEN. Virchows Arch., 1951, 321: 1-61. 101 refs. Abstracted in: Excerpta med., Sect. 1, 1952, 6: No. 1775; Chem. Abstr., 1952, 46: 4586[d].

778
Mathies, J. C. NATURE OF ALTERATIONS IN ACTIVITY OF ALKALINE PHOSPHATASE IN TISSUES OF HYPOPHYSECTOMIZED RATS. Fed. Proc., Balt., 1951, 10: 222-223. An abstract. "Previous findings of decreased alkaline phosphatase activity in bone and kidney and increased activity in liver following hypophysectomy with returns toward normal after treatment with anterior pituitary growth hormone" are investigated in greater detail.

779
Mathies, J. C. and Gaebler, O. H. THE EFFECT OF GROWTH HORMONE PREPARATIONS ON ALKALINE PHOSPHATASE OF THE TIBIA. Endocrinology, 1949, 45: 129-134. 16 refs. Abstracted in: Biol. Abstr., Balt., 1950, 24: No. 9195; Chem. Abstr., 1950, 44: 4564[i].

780
Mathies, J. C., Goodman, E. D. and Palm, L. EFFECTS OF HYPOPHYSECTOMY, GROWTH HORMONE AND THYROXINE ON PHOSPHATASES OF TIBIA, LIVER, SPLEEN, AND KIDNEYS OF RAT. Am. J. Physiol., 1952, 168: 352-365. 45 refs. Abstracted in: Chem. Abstr., 1952, 46: 6243[b]; Biol. Abstr., Balt., 1952, 26: No. 17889.

781
Meroni, C. M. LAS FOSFATASAS; NATURALEZA, PAPEL Y DISTRIBUCION. Rev. odont., B. Air., 1953, 41: 13-16. In this review of the processes of osteogenesis the important role of the phosphatases in the biochemical mechanisms involved in bone salts formation is stressed. The hard tissues of growing vertebrates contain phosphomonoesterase, called the bone enzyme or bone phosphatase. The characteristics and behavior of this enzyme are discussed in relation to other body chemicals and its distribution in bones and teeth described. The mechanism of bone phosphatase action is examined from the qualitative and quantitative points of view.

782
Moog, F. LOCALIZATIONS OF ALKALINE AND ACID PHOSPHATASES IN THE EARLY EMBRYOGENESIS OF THE CHICK. Biol. Bull., 1944, 86: 51-80. 34 refs. Abstracted in: Biol. Abstr., Balt., 1944, 18: No. 16370. "The changes in phosphatase distribution in the principal soft organs up to the eighth day, and the relation of alkaline phosphatase to bone deposition in the hind limb up to the eleventh day, are considered."

783
Moog, F. THE PHYSIOLOGICAL SIGNIFICANCE OF THE PHOSPHOMONOESTERASES. Biol. Rev. Cambridge Philos. Soc., 1946, 21: 41-59. Approx. 180 refs. Abstracted in: Biol. Abstr., Balt., 1946, 20: No. 16859. A review. See particulary phosphatase and calcification: normal and abnormal calcification, glycogen and the 'second mechanism', and influence of hormones and vitamins, p. 47-50.

784
Moog, F. and Wenger, E. L. THE OCCURRENCE OF A NEUTRAL MUCOPOLYSACCHARIDE AT SITES OF HIGH ALKALINE PHOSPHATASE ACTIVITY. Am. J. Anat., 1952, 90: 339-377. 42 refs. Abstracted in: Excerpta med., Sect. 1, 1953, 7: No. 1125. See particulary, ossifying tissues: p. 350-354.

785
Morse, A. and Greep, R. O. ALKALINE PHOSPHATASE IN THE JAW BONES AND TEETH OF THE ALBINO RAT AS RELATED TO ABNORMAL STATES OF BODY GROWTH, MINERAL METABOLISM, AND DEVELOPMENT. J. Dent. Res., 1952, 31: 284-292. 15 refs. Abstracted in: Chem. Abstr., 1952, 46: 5703[f]; Biol. Abstr., Balt., 1952, 26: No. 24170.

786
Morse, A. and Greep, R. O. EFFECT OF ABNORMAL METABOLIC STATES UPON THE HISTOCHEMICAL DISTRIBUTION OF ALKALINE PHOSPHATASE IN THE TIBIA OF THE ALBINO RAT. Anat. Rec., 1951, 111: 193-219. 4 pl. 24 refs. Abstracted in: Biol. Abstr., Balt., 1952, 26: No. 31241; Chem. Abstr., 1952, 46: 8751[h].

787
Motzok, I. STUDIES ON THE PLASMA PHOSPHATASE OF NORMAL AND RACHITIC CHICKS. II. RELATIONSHIP BETWEEN PLASMA PHOSPHATASE AND THE PHOSPHATASES OF BONE, KIDNEY, LIVER AND INTESTINAL MUCOSA. Biochem. J., Lond., 1950, 47: 193-196. 17 refs. Abstracted in: Excerpta med., Sect. 2, 1951, 4: No. 2327; Ber. ges. Physiol., 1952, 148: 294.

ENZYME RELATIONSHIPS - PHOSPHATASE (Continued)

788
Nava, G. CONTRIBUTO AL MECCANISMO DI AZIONE DELLA VITAMINA E. MODIFICAZIONI DELLE FOSFATASI ALCALINE DEL SANGUE E DEI TESSUTI. Arch. Maragliano pat. clin., 1949, 4: 727-734. 27 refs. Abstracted in: Excerpta med., Sect. 2, 1950, 3: No. 3661.

789
Nava, G. and Fiore, A. L'INFLUENZA ORMONICA TESTICOLARE SUI COMPLESSI FOSFATASICI DEL SANGUE E DEI TESSUTI. Arch. sc. med., Tor., 1949, 88: 533-538. 18 refs.

790
Neuman, W. F., DiStefano, V and Mulryan, B. J. OBSERVATIONS ON THE ROLE OF PHOSPHATASE IN CALCIFICATION. 17p. University of Rochester Atomic Energy Project, Rochester, N. Y., 1951. (UR-162) 21 refs.

791
Neuman, W. F., DiStefano, V. and Mulryan, B. J. THE SURFACE CHEMISTRY OF BONE. III. OBSERVATIONS ON THE ROLE OF PHOSPHATASE. J. Biol. Chem., 1951, 193: 227-235. 22 refs. "Experiments were performed to test the notion that glycero phosphate is inhibitory to calcification in the absence of active phosphatase. It was shown that ester phosphate is strongly adsorbed by bone mineral and that such adsorbed ester inhibits the accretion of additional mineral both in isolated inorganic systems and in calcifying slices of rachitic cartilage taken from rat tibia. The significance of these results is discussed."

792
Norris, W. P. and Cohn, S. H. THE EFFECT OF INJECTED RADIUM ON THE ALKALINE PHOSPHATASE ACTIVITY OF BONE AND TISSUES. J. Biol. Chem., 1952, 196: 255-264. 22 refs. Abstracted in: Chem. Abstr., 1952, 46: 11281^{c}; Nuclear Sc. Abstr., 1952, 6: No. 28.

793
Page, I. H. WIRKUNG DES NEBENSCHILDDRÜSENHORMONS AUF PHOSPHATASE. Biochem. Zschr., 1930, 223: 222-227. 30 refs. Abstracted in: Biol. Abstr., Balt., 1932, 6: No. 21880. Injections of parathyroid hormone cause a marked diminution in the activity of bone phosphatase of rats.

794
Perkins, H. R. PHOSPHATASE ACTIVITIES OF VARIOUS REGIONS OF RABBIT BONE. Biochem. J., Lond., 1954, 57: Proc. 15-16. 3 refs.

795
Pisa, M. MODIFICAZIONI DELLA ATTIVITÀ FOSFATASICA DELLE OSSA IN SEGUITO A NEVRECTOMIA. Biochim. ter. sper., 1934, 21: 497-505. In rabbits sciatic and crural neurectomy resulted in demineralization and reduced phosphatase activity in the femur.

796
Policard, A., Pehu, M., Roche, J. and Boucomont, J. RÉPARTITION HISTOLOGIQUE DE LA PHOSPHATASE DANS LA ZONE D'OSSIFICATION DES OS LONGS CHEZ L'ENFANT NORMAL ET RACHITIQUE. Bull. histol. appl., Lyon, 1931, 8: 171-175. Abstracted in: Chem. Abstr., 1932, 26: 5133; Biol. Abstr., Balt., 1932, 6: No. 22305. Comparison of phosphatase content and distribution in the ossification zones of the long bones of rachitic and normal children.

797
Prina, C. and Grugni, C. LE VARIAZIONI DELLA FOSFATASI NELLA OSSIFICAZIONE ETEROTOPICA. I. LA FOSFATASI ALCALINA NELL'INNESTO AUTOPLASTICO DI MIDOLLO OSSEO NEL RENE. Boll. Soc. ital. biol. sper., 1948, 24: 1314-1315. 5 refs. Abstracted in: Chem. Abstr., 1950, 44: 1152^{e}. In rabbits and guinea pigs autogenous transplants of bone marrow were made from the tibia to the kidney. The increased phosphatase activity, attributed to the osteogenetic action of the marrow, was manifested not only in the implant but also in the immediately adjacent renal tissue, which took part in the osteogenesis.

798
Robison, R. BONE PHOSPHATASE. Erg. Enzymforsch., 1932, 1: 280-294. Approx. 50 refs.

799
Robison, R. CHEMISTRY AND METABOLISM OF COMPOUNDS OF PHOSPHORUS. Annual Rev. Biochem., 1936, 5: 181-204. 166 refs. A review. See particularly, the mechanism of calcification in animal tissues, and phosphatases: p. 194-196.

800
Roche, J. LA PHOSPHATASE DES OS (BIOCHIMIE NORMALE ET PATHOLOGIQUE). Exposés ann. biochim. méd., 1942, 3.sér., 251-269.

801
Roche, J. LA PHOSPHATASE DES OS ET LE MÉCANISME GÉNÉRAL DE L'OSSIFICATION. Experientia, Basel, 1946, 2: 325-336. Approx. 75 refs. Abstracted in: Biol. Abstr., Balt., 1947, 21: No. 16577; Nutrit. Abstr., Aberdeen, 1947-48, 17: No. 1926.

802
Roche, J. LE RÔLE DES PHOSPHATASES DANS LE MÉTABOLISME DU CALCIUM. Ann. Nutrit., Par., 1947, 1: 3-30. 147 refs. Abstracted in: Chem. Abstr., 1947, 41: 5178^{h}.

803
Roche, J. SUR LA BIOCHIMIE GÉNÉRALE DES PHOSPHATASES. Helvet. chim. acta, 1946, 29: 1253-1267. 50 refs.

804
Roche, J. and Bullinger, E. RECHERCHES SUR L'OSSIFICATION. VII. LA PHOSPHATASE DU SQUELETTE (OS, DENTS, DERMATOSQUELETTE) CHEZ LES POISSONS OSSEUX OU CARTILAGINEUX. Bull. Soc. chim. biol., Par., 1939, 21: 166-184. 20 refs.

805
Roche, J. and Deltour, G. H. RECHERCHES SUR L'OSSIFICATION. XIII. RÔLE DE LA PHOSPHATASE DANS LA CALCIFICATION DES OS IN VITRO ET THÉORIE "DES FIXATEURS DU CALCIUM." Tr. Soc. chim. biol., 1943, 25: 1260-1273. 18 refs. Abstracted in: Biol. Abstr., Balt., 1948, 22: No. 897; Nutrit. Abstr., Aberdeen, 1946-47, 16: No. 3209.

806
Roche, J. and Deltour, G. H. THE ROLE OF PHOSPHATASE IN THE CALCIFICATION OF BONE IN VITRO AND THE THEORY OF "CALCIUM TRAPPING AGENTS." IN: MEDICAL RESEARCH IN FRANCE DURING THE WAR, 1939-1945. (Hamburger, J., ed.) [English version] Paris, Flammarion, 1947, p. 292-303. 18 refs. It is shown "that the phosphatase included in the cartilaginous tissue plays an essential role in the osseous calcification enriching 'in situ' the cells in phosphoric ions and indirectly provoking a second influx of calcium ions toward the same regions. Roche and Deltour's observations do not permit us to accept the classical theory of the 'calcium fixators' which assumes that the ossification process is due to the succession of fixation of calcium then of phosphoric acid leading to the precipitation of insoluble tricalcium phosphate."

ENZYME RELATIONSHIPS - PHOSPHATASE (Continued)

807
Roche, J. and Deltour, G. SUR LE MÉCANISME BIOCHIMIQUE DE L'OSSIFICATION ET LE RÔLE PHYSIOLOGIQUE DE LA PHOSPHATASE DES OS. C. rend. Acad. sc., 1943, 216: 748-750. 1 ref. Abstracted in: Chem. Abstr., 1944, 38: 2373[4]; Nutrit. Abstr., Aberdeen, 1945-46, 15: No. 572.

808
Roche, J. and Filippi, A. ACTIVITÉ PHOSPHATASIQUE DES OS ET HORMONE PARATHYROIDIENNE. C. rend. Soc. biol., 1938, 129: 326-238. 7 refs. Abstracted in: Chem. Abstr., 1939, 33: 706[7].

809
Roche, J. and Filippi, A. SUR L'ACTIVITÉ DE LA PHOSPHATASE DES OS LONGS AUX DIVERSES ÉTAPES DE LA CROISSANCE. C. rend. Soc. biol., 1937, 125: 1064-1066. 2 refs. Abstracted in: Chem. Abstr., 1938, 32: 198[9].

810
Roche, J. and Léandri, A. ÉTUDE QUANTITATIVE DE LA PHOSPHATASE DES OS LONGS AU COURS DE LA CROISSANCE DU RAT. C. rend. Soc. biol., 1935, 119: 1141-1144. 3 refs. Abstracted in: Biol. Abstr., Balt., 1936, 10: No. 8353; Chem. Abstr., 1935, 29: 7350[5].

811
Roche, J. and Martin-Poggi, R. RECHERCHES SUR L'OSSIFICATION. IX. RÔLE DE LA VITAMINE C ET DE LA PHOSPHATASE DANS LA FORMATION DE LA SUBSTANCE OSSEUSE, EN PARTICULIER DANS LES CALS DE FRACTURE. Tr. Soc. chim. biol., 1941, 23: 1535-1545. 8 refs. Abstracted in: Biol. Abstr., Balt., 1948, 22: No. 895.

812
Roche, J. amd Mourgue, M. RECHERCHES SUR L'OSSIFICATION. XII. PREMIÈRES ÉTAPES DE LA CALCIFICATION DU SQUELETTE (OS ET DENTS) ET RÔLE DE LA PHOSPHATASE DANS L'OSSIFICATION. Tr. Soc. chim. biol., 1942, 24: 1186-1195. 11 refs. Abstracted in: Biol. Abstr., Balt., 1948, 22: No. 896; Nutrit. Abstr., Aberdeen, 1946-47, 16: No. 1961.

813
Roche, J. and Simonot, M. T. ACTIVITÉ PHOSPHATASIQUE DES OS ET MÉCANISME DU RACHITISME EXPÉRIMENTAL. Enzymologia, 1942, 10: 239-243. 17 refs. Abstracted in: Biol. Abstr., Balt., 1946, 20: No. 772.

814
Roche, J., Filippi, A. and Léandri, A. RECHERCHES SUR L'OSSIFICATION. III. LA PHOSPHATASE DES OS LONGS AUX DIVERSES ÉTAPES DE LA CROISSANCE. Bull. Soc. chim. biol., Par., 1937, 19: 1314-1324. 8 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1937-38, 7: No. 4942.

815
Roche, J., Laromiguière, S. de, and Laurens, A. SUR LA DIFFÉRENCIATION DES PHOSPHATASES ALCALINES (PHOSPHOMONOESTÉRASES ET PYROPHOSPHATASES) DES DIVERS ORGANES ANIMAUX. C. rend. Soc. biol., 1943, 137: 243-244. 5 refs.

816
Rossi, A. RICERCHE SULLA FOSFATASI DELLA OSSA. Boll. Soc. ital. biol. sper., 1933, 8: 714-719. 9 refs. Abstracted in: Chem. Abstr., 1935, 29: 2557[6].

817
Rossi, A. and De Rienzo, A. AZIONE DELL'ERGOSTEROLO IRRADIATO SULLA FOSFATASI DELLE OSSA. Boll. Soc. ital. biol. sper., 1933, 8: 719-722. 2 refs. Abstracted in: Chem. Abstr., 1935, 29: 2557[7].

818
Rouiller C. and Majno, G. ÉTUDE HISTOCHIMIQUE DE LA PHOSPHATASE ALCALINE DANS LE RACHITISME. (NOTE PRÉLIMINAIRE). Arch. sc., Genève, 1951, 4: 252-253. Abstracted in: Biol. Abstr., Balt., 1952, 26: No. 34203. In young rachitic rats histochemical analyses demonstrated that when resting cartilage is transformed into growth cartilage the amount of phosphatase present is at least as great as in normal animals, and that phosphatase distribution in the endosteal and periosteal osseous tissues is not qualitatively modified.

819
Sacchi, U. FOSFATASI DELL'OSSO E IRRADIAZIONE SOLARE. Boll. Soc. ital. biol. sper., 1935, 10: 94-97. 9 refs. Abstracted in: Chem. Abstr., 1935, 29: 4781[6].

820
Sacchi, U. L'INFLUENZA DELLA SIMPATECTOMIA GANGLIARE SUL CONTENUTO DELL'OSSO IN FOSFATASI. Boll. Soc. ital. biol. sper., 1935, 10: 100-103. 12 refs. Abstracted in: Chem. Abstr., 1935, 29: 4811[1].

821
Scimone, I. SUL COMPORTAMENTO DELLA FOSFATASI DEL PLASMA E DEI COMPONENTI MINERALI DELLE OSSA IN ANIMALI TRATTATI CON ESTRATTI DE FOSFATASI OSSEA. Pathologica, 1939, 31: 520-525. 13 refs. German and English summaries. "The repeated, although transitory, increases of the plasma phosphatasic activity, obtained by the intravenous injection of aqueous bone extract, cause, if the experiment is sufficiently long, a decrease of the bone mineral content expounding the splitting action of the ferment on the inorganic phosphorus compounds, which constitute in great part the bone mineral substance."

822
Scoz, G. VARIAZIONI DEL POTERE FOSFATASICO DELL'OSSO, DEL RENE E DEL SANGUE NEL RACHITISMO SPERIMENTALE. Boll. Soc. ital. biol. sper., 1935, 10: 823-826. 2 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1935-36, 5: No. 2729.

823
Scoz, G. and Marangoni, P. L. L'AZIONE DELLA TIROXINA SUL POTERE FOSFATASICO DELLE OSSA, NEL RATTO. Boll. Soc. ital. biol. sper., 1934, 9: 969-971. 9 refs. Abstracted in: Chem. Abstr., 1935, 29: 1842[5].

824
Scoz, G. and Marangoni, P. L. VARIAZIONI DEL POTERE FOSFATOSICO DEL SANGUE E DELL'OSSO E DEL PROCESSO DI OSSIFICAZIONE IN RAPPORTO CON LA VELOCITA DI ACCRESCIMENTO NORMALE E SPERIMENTALMENTE MODIFICATA. Arch. sc. biol., Bologna, 1936, 22: 43-65. 25 refs. Abstracted in: Chem. Abstr., 1936, 30: 83335.

825
Scoz, G. and Marangoni, P. L. VARIAZIONI NEI PROCESSI DI OSSIFICAZIONE IN RAPPORTO CON LA VELOCITA DI ACCRESCIMENTO NORMALE E SPERIMENTALE MODIFICATA. Boll. Soc. ital. biol. sper., 1935, 10: 678-680. Abstracted in: Chem. Abstr., 1936, 30: 7643[3]; Nutrit. Abstr., Aberdeen, 1935-36, 5: No. 3081.

826
Siffert, R. S. THE ROLE OF ALKALINE PHOSPHATASE IN OSTEOGENESIS. J. Exp. M., 1951, 93: 415-426. 2 pl. 19 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1951-52, 21: No. 2002; Chem. Abstr., 1951, 45: 8115[b].

ENZYME RELATIONSHIPS - PHOSPHATASE (Continued)

827
Slessor, A. and Wyburn, G. M. PHOSPHATASE AND BONE FORMATION. Lancet, Lond., 1948, 254: 212-213. 4 refs. Abstracted in: Chem. Abstr., 1950, 44: 9028g. In the rabbit, injections of phosphatase from long bones of foetal calves did not stimulate bone formation.

828
Sobel, A. E., Cohen, J. and Kramer, B. PHOSPHATASE ACTIVITY AND CALCIFICATION IN STRONTIUM RICKETS. Biochem. J., Lond., 1935, 29: 2646-2650. 11 refs. "Comparative determinations of the phosphatase activities of bones obtained from rats with strontium and those with calcium rickets were made. It was found that there was no significant difference in the phosphatase activities in similar anatomical portions of the bones from the two groups of animals."

829
Tanaka, M. ÜBER DEN EINFLUSS VERSCHIEDENER BEDINGUNGEN AUF DIE WIRKUNG DER PHOSPHATASEN IN VERSCHIEDENEN ORGANEN UND GEWEBEN. Mitt. Med. Akad. Kioto, 1935, 13: 479-510. 121 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1935-36, 5: No. 355.

830
Tanko, B. and Robison, R. THE HYDROLYSIS OF HEXOSEDIPHOSPHORIC ESTER BY BONE PHOSPHATASE. II. (A) THE PARTICIPATION OF PHOSPHOHEXOKINASE; (B) THE ISOLATION OF PURE FRUCTOSE 1-PHOSPHATE. Biochem. J., Lond., 1935, 29: 961-972. 10 refs. Abstracted in: Chem. Abstr., 1935, 29: 5869^{2}.

831
Theopold, W. UNTERSUCHUNGEN ZUR AKTIVITÄT DER ALKALISCHEN PHOSPHATASE IM GEWEBE GESUNDER UND RACHITISCHER RATTEN. Mschr. Kinderh., 1951, 99: 227-231. 38 refs. Abstracted in: Chem. Abstr., 1951, 45: 8608^{e}.

832
Whicher, C. H. and Watson, E. M. EFFECTS OF THYROTROPIC HORMONE, GONADOTROPIC FACTOR, PITUITARY GROWTH SUBSTANCE AND INSULIN UPON THE PHOSPHATASE CONTENT OF RAT FEMURS. Endocrinology, 1943, 33: 83-86. 6 refs. Abstracted in: Biol. Abstr., Balt., 1944, 18: No. 6268; Chem. Abstr., 1943, 37: 6024^{9}.

833
Wilkins, W. E., Calhoun, J. A., Pilcher, C. and Regen, E. M. THE INFLUENCE OF PITUITARY GROWTH HORMONE ON THE PHOSPHATASE ACTIVITY OF BONE AND KIDNEY. Am. J. Physiol., 1935, 112: 477-480. 7 refs. "Injection of anterior pituitary growth hormone into adult rats was accompanied by an increase in body, bone and kidney weights. The bones and kidneys of the injected animals showed a slightly lower phosphatase activity per unit of weight than those of the controls. It appears that renewed growth of adult rat bone is not accompanied by an increase in phosphatase activity."

834
Zetterström, R. and Ljunggren, M. THE ACTIVATION OF ALKALINE PHOSPHATASE FROM DIFFERENT ORGANS BY PHOSPHORYLATED VITAMIN D_2. Acta chem. scand., 1951, 5: 283-290. 26 refs. In vitro, vitamin D_2 activates alkaline phosphatase from the kidneys, intestines, and bones. The activation is highest for bone phosphatase. If this activation, which is obtained in vitro occurs in vivo, it may explain the changes in phosphate metabolism observed after administration of vitamin D to a rachitic animal.

835
Zorzoli, A. THE HISTOCHEMICAL LOCALIZATION OF ALKALINE PHOSPHATASE IN DEMINERALIZED BONES OF MICE OF DIFFERENT AGES. Anat. Rec., 1948, 102: 445-467. 4 pl. Abstracted in: Biol. Abstr., Balt., 1949, 23: No. 15428; Chem. Abstr., 1953, 47: 5461^{c}. The appearance of enzyme always preceded the appearance of bone salts. Ossification was never observed in the absence of phosphatase. The quantity of phosphatase diminshed with age.

836
Zorzoli, A. and Nadel, E. M. ALKALINE PHOSPHATASE ACTIVITY IN THE BONES OF NORMAL AND ASCORBUTIC GUINEA PIGS; A CORRELATED BIOCHEMICAL AND HISTOCHEMICAL STUDY. J. Histochem. Cytochem., 1953, 1: 362-371. 18 refs.

See:

18	183	372	683	703
705	707	708	1146	1147
1166	1188	1481	1904	1950
2464	2633	2792	2847	

ENZYME RELATIONSHIPS - PHOSPHATASE IN REGENERATION AND REPAIR

837
Agrifoglio, E. VARIAZIONI DELLE FRAZIONI FOSFORICHE ACIDOSOLUBILI NELL'EVOLUZIONE DEL CALLO DI FRATTURA SPERIMENTALE. Minerva chir., Tor., 1952, 7: 110-111. 6 refs. Abstracted in: Chem. Abstr., 1953, 47: 2325^{g}. Studies of the calluses from experimental fractures in 3 dogs showed a gradual decrease in inorganic phosphatase, and in fractions of the phosphoric esters and other more stable esters, suggesting phosphorylation. These data agree with those of the in vitro study of Polonovsky and Cartier on the first phases of cartilage ossification and they are interpreted as demonstrating that Robinson's phosphatase mechanism does not occur in the first phases of callus formation nor of ossification.

838
Blum, G. PHOSPHATASE AND THE REPAIR OF FRACTURES. Lancet, Lond., 1944, 2: 75-78. Abstracted in: Chem. Abstr., 1944, 38: 6369^{5}; Biol. Abstr., Balt., 1944, 18: No. 18719; Nutrit. Abstr., Aberdeen, 1944-45, 14: No. 1286.

839
Botterell, E. H. and King, E. J. PHOSPHATASE IN FRACTURES. Lancet, Lond, 1935, I: 1267-1270. 5 refs. Abstracted in: Chem. Abstr., 1935, 29: 5913^{6}. Study was made with rabbits. "The introduction of phosphatase into the site of experimental fractures produced no change in the rate or apparent quality of the calcification of the bone matrix."

840
Bourne, G. H. ALKALINE PHOSPHATASE AND VITAMIN C DEFICIENCY IN REGENERATION OF SKULL BONES. J. Anat., Lond., 1948, 82: 81-87. 2 pl. 12 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1948-49, 18: No. 4412; Excerpta med., Sect. 9, 1950, 4: No. 5094.

841
De Leo, F. SULL'ATTIVITÁ DELLA FOSFATASI NEI PROCESSI OSTEOGENETICI. RICERCHE SPERIMENTALI. Boll. Soc. ital. biol. sper., 1941, 16: 777-780. Abstracted in: Chem. Abstr., 1946, 40: 6625^{9}.

842
De Lisi, C. INFLUENZA DELLE PARATIROIDI SUL CONTENUTO DELLA GLICEROFOSFATASI NEL CALLO OSSEO. Pathologica, Genova, 1937, 29: 428-432. 31 refs.

ENZYME RELATIONSHIPS - PHOSPHATASE IN REGENERATION AND REPAIR (Continued)

843
*Fontaine, R., Chevallier, A., Mandel, P., Wiest, E. and Schuller, M. ÉTUDE DE L'ACTIVITÉ PHOSPHATASIQUE DES OS LONGS AU COURS DES FRACTURES EXPÉRIMENTALES CHEZ LE CHIEN. C. rend. Soc. biol., 1948, 142: 702-704. Abstracted in: Excerpta med., Sect. 5, 1949, 2: No. 1888; Chem. Abstr., 1949, 43: 1071^{i}.

844
George, E. M. PHOSPHATASE ACTIVITY IN BLOOD SERUM, BONE, AND SOFT TISSUES FOLLOWING FRACTURE IN THE CAT. Arch. Surg., 1948, 57: 113-136. 54 refs. Abstracted in: Chem. Abstr., 1953, 47: 4991^{g}.

845
Haluzicky, M. LOKÁLNE VYŠETROVANIE AKTIVITY FOSFATÁZ HISTOCHEMICKOU METODOU. Bratisl. lék. listy, 1950, 30: 340-342. 3 refs. Abstracted in: Excerpta med., Sect. 1, 1952, 6: No. 1291.

846
IAkovleva, T. M. GLIKOGEN I SHCHELOCHNAIA FOSFATAZA KAK KHARAKTERNYE TSITOKHIMICHESKIE POKAZATELI REGENERATSIONNOI KLETKI. [GLYCOGEN AND ALKALINE PHOSPHATASE AS CHARACTERISTIC CYTOCHEMICAL INDICATORS OF [THE] REGENERATIVE CELLS] Doklady Akad. nauk SSSR, 1954, 89: 347-350. 11 refs.

847
Kamada, K. [ON THE CALLUS-PHOSPHATASE AND ITS PARTICIPATION IN THE HEALING PROCESS OF FRACTURE] Fukuoka acta med., 1932, 25: 207-267. 4 pl. 67 refs. In Japanese. English abstract: p. 5-6. Abstracted in: Biol. Abstr., Balt., 1933, 7: No. 5335; Chem. Abstr., 1932, 26: 600^{1}.

848
Kroon, D. B. PHOSPHATASE AND THE FORMATION OF PROTEIN-CARBOHYDRATE COMPLEXES. Acta anat., Basel, 1952, 15: 317-328. 12 refs. Abstracted in: Excerpta med., Sect. 1, 1953, 7: No. 224.

849
Li, C. H., Kalman, C. and Evans, H. M. THE EFFECT OF THE HYPOPHYSEAL GROWTH HORMONE ON THE ALKALINE PHOSPHATASE OF RAT PLASMA. J. Biol. Chem., 1947, 169: 625-629. 10 refs. "If the influence of growth hormone on the concentration of plasma phosphatase is regarded as indicative of the hormonal action on either bone formation or general body growth, or both, the observed counteraction of the growth and adrenocorticotrophic hormones in the phosphatase activity is not surprising."

850
McKeown, R. M. and Ostergren, K. I. THE PHOSPHATASE CONTENT OF FRACTURED BONE. Proc. Soc. Exp. Biol., N. Y., 1931, 29: 54-56. 2 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1931-32, 1: No. 2486.

851
*Majno, G. and Rouiller, C. ÉTUDE HISTOCHIMIQUE DE LA PHOSPHATASE ALCALINE DANS LA RÉGÉNÉRATION ET LE REMAINIEMENT DE L'OS. Arch. sc., Genève, 1950, 3: 248-251. Abstracted in: Biol. Abstr., Balt., 1952, 26: No. 31240; Excerpta med., Sect. 1, 1951, 5: No. 1741.

852
Roche, J. and Filippi, A. RECHERCHES SUR L'OSSIFICATION. V. AUGMENTATION DE L'ACTIVITÉ PHOSPHATASIQUE DU SQUELETTE APRÈS FRACTURE D'UN OS ET BIOCHIMIE GÉNÉRALE DU SYSTÈME OSSEUX. Bull. Soc. chim. biol., Par., 1938, 20: 1147-1165. 22 refs.

853
Roche, J. and Martin-Poggi, R. SUR LES RÔLES DE LA VITAMINE C ET DE LA PHOSPHATASE DANS LA FORMATION DE LA SUBSTANCE OSSEUSE AU NIVEAU DES CALS DE FRACTURE. C. rend. Acad. sc., 1941, 213: 668-670. Abstracted in: Chem. Abstr., 1943, 37: 3162^{6}.

854
Rosin, A. ÜBER DAS VERHALTEN DER ALKALISCHEN PHOSPHATASE IM FRAKTURKALLUS DER RATTE. Acta anat., Basel, 1952, 16: 29-44. Approx. 30 refs. French and English summaries. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 16393; Chem. Abstr., 1953, 47: 8890^{g}.

855
Sieber, E. BEDEUTUNG DER ALKALISCHEN SERUM-PHOSPHATASEUNTERSUCHUNGEN IM VERLAUF DER KNOCHENBRUCHHEILUNG. Zbl. Chir., 1953, 78: 1583-1590. 22 refs.

856
Solerio, L. and Sabaino, D. RAPPORTI FRA FOSFATASI OSSEA E PLASMATICA NEL DECORSO DELLE FRATTURE. Arch. sc. med., Tor., 1948, 85: 37-51. 19 refs. Abstracted in: Chem. Abstr., 1948, 42: 5532^{h}.

857
Solerio, L. and Sabaino, D. SUL COMPORTAMENTO DELL'ATTIVITA FOSFATASICA OSSEA E PLASMATICA NELLE FRATTURE IN ARTI ENERVATI. Ricer. pat. sper., 1948, 37: 157-176. 34 refs. Abstracted in: Chem. Abstr., 1950, 44: 7955^{a}.

858
Tollman, J. P., Drummond, D. H., McIntyre, A. R. and Bisgard, J. D. TISSUE METABOLISM AND PHOSPHATASE ACTIVITY IN EARLY CALLUS. Arch. Surg., 1940, 40: 43-48. 14 refs. "There was an initial rise in tissue metabolism of the callus, followed by a fall. ...increase in phosphatase activity and calcium deposition with time. The changes in concentration of serum phosphatase were not characteristic. A close relation was found between the phosphatase activity of the callus and the amount of calcium deposition."

859
Utsunomiya, S. and Matsuda, T. HISTOCHEMICAL STUDY ON PHOSPHATASE IN CALLUS TISSUE IN EXPERIMENTAL BONE FRACTURE. Igaku & Seibutsugaku, 1953, 26: 213-216. Abstracted in: Chem. Abstr., 1953, 47: 11479^{a}.

860
Utsunomiya, S. and Yoshimura, K. CHANGE OF ALKALINE PHOSPHATASE CONTENT IN LEUCOCYTES DURING THE FRACTURE HEALING. Igaku & Seibutsugaku, 1952, 25: 302-305. 13 refs. Abstracted in: Chem. Abstr., 1953, 47: 11478^{h}.

861
Wilkins, W. E. and Regen, E. M. COURSE OF PHOSPHATASE ACTIVITY IN HEALING OF FRACTURED BONE. Proc. Soc. Exp. Biol., N. Y., 1935, 32: 1373-1376. 7 refs. Abstracted in: Biol. Abstr., Balt., 1937, 11: No. 1008.

See:

811 2300

GENERAL AND REVIEW ARTICLES
For a review on a specific subject, see under subject

862
Austoni, B. and Coggi, G. FOSFATASI TISSULARE E PLASMATICA E SUE VARIAZIONI PER LA INFLUENZA DI MODIFICATI FATTORI ORMONICO-VITAMINICI. (CONTRIBUTO CLINICO E RICERCHE SPERIMENTALI.) Arch. ital. chir., 1934, 37: 313-340. 74 refs. Abstracted in: Biol. Abstr., Balt., 1935, 9: No. 11166.

863
Blanco-Morales, C. P. LA FISIOPATOLOGIA DEL TEJIDO ÓSEO. Rev. clin. españ., 1951, 42: 1-13. 55 refs. Abstracted in: Chem. Abstr., 1952, 46: 2147h.

864
Bourne, G. H. and Kidder, G. W., eds. BIOCHEMISTRY AND PHYSIOLOGY OF NUTRITION. New York, The Academic Press, 1953. See particularly, Vitamin C: v.1, p. 370-471; Structural changes in vitamin deficiencies, v.2, p. 42-127; Calcium and phosphorus metabolism, v.2, p. 410-425.

865
Colonna, P. C., Ralston, E. L. and Friedenberg, Z. B. RECENT ADVANCES IN BONE PHYSIOLOGY. Surg. Clin. N. America, 1951, 31: 1531-1550. 82 refs. Abstracted in: Excerpta med., Sect. 2, 1952, 5: No. 4316.

866
CONFERENCE ON BONE AND WOUND HEALING. TRANSACTIONS. New York, The Josiah Macy Jr. Foundation. Conf. 1-3, 1942-1943.

867
CONFERENCE ON CONNECTIVE TISSUES. TRANSACTIONS. New York, The Josiah Macy Jr. Foundation. Conf. 1-5, 1950-1954. The Transactions of the fifth conference is not yet off the press. It will close the series. The Transactions contain many valuable papers.

868
CONFERENCE ON METABOLIC ASPECTS OF CONVALESCENCE. TRANSACTIONS. New York, The Josiah Macy Jr. Foundation. Conf. 4-17, 1943-1948. This is a continuation of Conference on bone and wound healing. Some of the papers from the Transactions which are particularly pertinent to this bibliography have been listed separately.

869
CONFERENCE ON METABOLIC INTERRELATIONS. TRANSACTIONS. New York, The Josiah Macy Jr. Foundation. Conf. 1-5, 1949-1953. The Transactions contain many valuable papers. Those important to this bibliography have been listed separately.

870
Dallemagne, M. J. DONNÉES RECENTES SUR LA NATURE ET LE MÉTABOLISME DE L'OS. Actual. biochim., Par., 1945, No. 2. 68p. Bibliography: p. 61-66. Abstracted in: Biol. Abstr., Balt., 1947, 21: No. 13751. A review of the literature on the mineral composition of bone and the theories concerning its structure.

871
Dallemagne, M. J. L'OS ET LES MÉCANISMES DE SA FORMATION; LES PHOSPHATES DE CALCIUM, LA BIOCHIMIE DE L'OSSIFICATION ET LA COMPOSITION DE L'OS. J. physiol., Par., 1951, 43: 425-515. Approx. 450 refs. A comprehensive review.

872
Dallemagne, M. J. THE PHYSIOLOGY OF SUPPORTING TISSUE. Annual. Rev. Physiol., 1950, 12: 101-118. 242 refs. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 24021; Chem. Abstr., 1950, 44: 10086i. A review of the literature devoted chiefly to the years 1946-1949. The structure, growth, chemistry and metabolism of bone are discussed as well as the influence of dietary and hormone factors on bone.

873
Dragstedt, C. A. SOME ASPECTS OF PHYSIOLOGY OF BONE. Nebraska M. J., 1932, 17: 93-98.

874
Duckworth, J. and Hill, R. THE STORAGE OF ELEMENTS IN THE SKELETON. Nutrit. Abstr., Aberdeen, 1953, 23:1-17. 229 refs. A review discussing: storage of calcium and phosphorus, bone composition as a measure of bone changes, differential resorption and repair of parts of individual bones and of parts of the skeleton, medullary bone, relationships between resorption and bone repair, exchange reactions and differential changes in the amounts of calcium and phosphorus, relationship between blood calcium and phosphorus values and changes in bone, bone changes in pregnancy and lactation, bone changes in egg production, and storage of other elements.

875
Engfeldt, B., Engström, A. and Zetterström, R. BENVÄVNADENS TILLVÄXT, BYGGNAD OCH REAKTIONSSÄTT. NYARE ASPEKTER. Nord. med., 1953, 49: 599-603. English summary. Abstracted in: Nutrit. Abstr., Aberdeen, 1953, 23: No. 4817.

876
Fankuchen, I. X-RAY STUDIES ON COMPOUNDS OF BIOCHEMICAL INTEREST. Annual Rev. Biochem., 1945, 14: 207-224. 85 refs. See particularly p. 219-222 for review of the literature on bone.

877
Friedenberg, Z. B. RECENT ADVANCES IN BONE PHYSIOLOGY. Internat. Abstr. Surg., 1954, 98: 313-320. 72 refs.

878
Friedenberg, Z. B. RECENT CONCEPTS OF BONE PHYSIOLOGY. J. Internat. Coll. Surgeons, 1953, 20: 374-376. Brief survey of present concepts.

879
Jolly, M. BONE, ITS NORMAL STRUCTURE, DEVELOPMENT AND SURGICAL PATHOLOGY. A CRITICAL REVIEW. [168]l. Sydney, Australia. (Thesis-Univ.) 146 refs. Typewritten.

880
Lacroix, P. THE ORGANISATION OF BONE. Translated from the amended French edition by Stewart Gilder. 235p. London, Churchill, 1951. Bibliography: p. 219-231. Reviewed in: Nutrit. Abstr., Aberdeen, 1952, 22: No. 1463; Brit. M. J., 1951, 2: 950.

881
Leriche, R. PHYSIOLOGIE ET PATHOLOGIE DU TISSUE OSSEUX. 455p. Paris, Masson et Cie, 1939. Reviewed in: Biol. Abstr., Balt., 1940, 14: No. 15777.

882
McLean, F. C. CALCIFICATION AND OSSIFICATION. Growth, Phila., 1942, 6: Suppl. 83-94. 23 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1945-46, 15: No. 571.

883
McLean, F. C. PHYSIOLOGY OF BONE. Annual Rev. Physiol., 1943, 5: 79-104. 210 refs. A comprehensive review.

884
McLean, F. C. THE PHYSIOLOGY OF BONE. IN: LECTURES ON REGIONAL ORTHOPAEDIC SURGERY AND FUNDAMENTAL ORTHOPAEDIC PROBLEMS. (Thomson, J. E. M., ed.). Ann Arbor, J. W. Edwards, 1947, 110-119. A brief survey devoted to the biological rather than the physical-chemical aspects of the calcification of bone and based chiefly on work done by Dr. McLean and his associates.

GENERAL AND REVIEW ARTICLES (Continued)

885
McLean, F. C. and Urist, M. R. BONE; AN INTRODUCTION TO THE PHYSIOLOGY OF SKELETAL TISSUE. 182p. Chicago, University of Chicago Press, 1955.

886
McLean, F. C. and Urist, M. R. NEWER KNOWLEDGE OF POST-FETAL OSTEOGENESIS. Bull. Hosp. Joint Dis., N. Y., 1951, 12: 431-442. 48 refs. A review discussing: morphology; origin of the bone cell; systemic factors; chemistry of calcification.

887
Murray, P. D. F. THE PHYSIOLOGY OF SUPPORTING TISSUE. Ann. Rev. Physiol., 1947, 9: 103-118. 199 refs. Abstracted in: Chem. Abstr., 1947, 41: 3851g.

888
Newton, W. H. SOME ASPECTS OF THE PHYSIOLOGY OF BONE. IN: EVANS' RECENT ADVANCES IN PHYSIOLOGY. 6.ed. Phila., Blakiston, 1939, p. 1-46. 43 refs.

890
Petersen, H. DIE ORGANE DES SKELETSYSTEMS. IN: HANDBUCH DER MIKROSKOPISCHEN ANATOMIE DES MENSCHEN. (Möllendorff, W. von, ed.) Berlin, Julius Springer, 1930, 2: Teil 2, 521-678. Bibliography: p. 676-678.

891
Policard, A. and Roche, J. LA FORMATION DE LA SUBSTANCE OSSEUSE. ESSAI DE COORDINATION DES DONNÉES HISTOLOGIQUES ET BIOCHIMIQUES. Ann. physiol., Par., 1937, 13: 645-703. Discussion: 704-712. A critical review, coordinating histological and biochemical findings and the various hypotheses on the processes of bone formation.

892
*RECENT ADVANCES IN THE STUDY OF THE STRUCTURE, COMPOSITION AND GROWTH OF MINERALIZED TISSUES. Ann. N. York Acad. Sc., (This will probably be published early in 1955 as vol. 58, article 8 of the Annals).

893
Roche, J. QUELQUES ASPECTS BIOCHIMIQUES DE L'OSSIFICATION. Ann. Soc. sc. méd. natur. Bruxelles, 1937, Nos. 3-4, 23-47.

894
Roche, J. QUELQUES PROBLÈMES BIOCHIMIQUES GÉNÉRAUX POSÉS PAR L'OSSIFICATION. Exposés ann. biochim. méd., 1939, 2.sér., 237-262.

895
Ruiz Gijón, J. LA COMPOSICIÓN QUÍMICA DEL HUESO Y BIOQUÍMICA DE LA OSIFICACIÓN. Rev. clín. espan., 1941, 3: 89-97. 69 refs.

896
Schaffer, J. DIE STÜTZGEWEBE. IN: HANDBUCH DER MIKROSKOPISCHEN ANATOMIE DES MENSCHEN. (Möllendorff, W. von, ed.) Berlin, Julius Springer, 1930, 2: Teil 2, 1-390. An exhaustive source to the earlier literature. References are interspersed throughout the work.

897
Schinz, H. R., Baensch, W. E., Friedl, E. and Uehlinger, E. ROENTGEN-DIAGNOSTICS. Tr. by James T. Case. 1st Am. ed. New York, Grune & Stratton, 1951. Skeleton: v. 1-2. Devoted to normal and abnormal physiology. Extensive list of references at end of each chapter.

898
Thomsen, H. PHYSIOLOGY AND BIOLOGY OF OSSEOUS TISSUE. Ugeskr. laeger, 1941, 103: 101-110.

899
Watson Jones, R. and Roberts, R. E. CALCIFICATION, DECALCIFICATION AND OSSIFICATION. Brit. J. Radiol., n.s. 1934, 7: 321-343; 391-414. 164 refs. Also in: Brit. J. Surg., 1934, 21: 461-499.

900
Weidenreich, F. DAS KNOCHENGEWEBE. IN: HANDBUCH DER MIKROSKOPISCHEN ANATOMIE DES MENSCHEN. (Möllendorff, W. von, ed.) Berlin, Julius Springer, 1930, 2: Teil 2, 391-520. Bibliography, p. 508-520.

901
Weinmann, J. P. and Sicher, H. BONE AND BONES; FUNDAMENTALS OF BONE BIOLOGY. 464p. St. Louis, Mosby, 1947. References: p. 424-453. A second edition of this work is in press.

See:

82 718 741 1775 1804 1880

GLYCOPROTEINS AND MUCOPOLYSACCHARIDES - BIBLIOGRAPHY

902
Murray, M R. and Kopech, G. A BIBLIOGRAPHY OF THE RESEARCH IN TISSUE CULTURE, 1884 TO 1950. New York, Academic Press, 1953. v.1 Ground substance: p. 659-662.

GLYCOPROTEINS AND MUCOPOLYSACCHARIDES OF BONE AND CARTILAGE

903
Blix, G. STUDIES IN GLYCOPROTEINS. Acta physiol. scand., 1940, 1: 29-42. Abstracted in: Brit. Abstr., Sect. AIII, 1941, p. 367. Hyalomucoid, synovial mucin and submaxillary mucin were investigated with aid of electrophoresis and the water extracts of cartilage (nasal septum from cattle) were studied. Only a minor part of the chondroitin sulphuric acid could be extracted with water alone. The author considers that the results clearly support the old view of Mörner that the chondroitin sulphuric acid in cartilage is partly present as alkali salt.

904
Bujard, E. GLYCOGÈNE ET OSSIFICATION MÉSENCHYMATEUSE. Schweiz. med. Wschr., 1949, 79: 504. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 1840.

905
Burkl, W. ÜBER DIE PRIMITIVEN STÜTZGEWEBE. Anat. Anz., 1953, 99: 307-312. 8 refs. A review of V. Patzelt's classification of the connective and supporting tissues is followed by a study of the mucopolysaccharide of bone ground substance and the suggestion that it be included in Patzelt's group of connective tissues.

906
Cadili, G. FUNZIONE DEGLI ESTERI SOLFORICI AD ALTO PESO MOLECOLARE NELLA FORMAZIONE DEL CALLO DI FRATTURA. Gior. ital. chir., 1949, 5: 579-585. 25 refs. In dogs, the role of the sulphuric esters of high molecular weight was studied in the formation of the fracture callus of the radius. It was concluded that these esters are important factors in determing connective tissue ossifiability.

907
Casuccio, C. STUDIO ISTOCHIMICO DELLE SOSTANZE IDROCARBONATE AD ALTO PESO MOLECOLARE NELLO SCHELETRO FETALE E NEI PRIMI STADI DELLO SVILLUPPO POSTNATALE. Ortop. traumat. app. motore, 1953, 21: 235-256. 74 refs. Abstracted in: Chem. Abstr., 1954, 48: 5996[1].

GLYCOPROTEINS AND MUCOPOLYSACCHARIDES OF BONE AND CARTILAGE (Continued)

908
Claiborne, C. L., Shetlar, M. R., Reifenstein, E. C., Jr., Jones, H. B. and McDougal, R. C. THE EFFECT OF PARATHYROID EXTRACT ON AMMONIUM-CHLORIDE-DECALCIFIED-BONE MATRIX AND ON THE SERUM LEVELS OF POLYSACCHARIDES: PRELIMINARY IN VIVO STUDIES IN PARATHYROIDECTOMIZED RATS. J. Clin. Endocr. Metab., 1953, 13: 860-861. An abstract. Serum polysaccharide levels showed a rise in the mucoprotein fraction upon administration of PTH. Histologic and histochemical findings in the bone specimens and detailed polysaccharide studies are presented.

909
*Cobb, J. D. THE MORPHOLOGICAL DISTRIBUTION OF GLYCOGEN AND GLYCOPROTEIN IN THE CELLS AND EXTRACELLULAR MATERIALS OF GROWING BONES. Urbana, Ill., 1949. (Thesis - Univ. of Illinois).

910
Engel, M. B. MOBILIZATION OF MUCOPROTEIN BY PARATHYROID EXTRACT. A.M.A. Arch. Path., 1952, 53: 339-351. 24 refs. Abstracted in: Chem. Abstr., 1952, 46: 8219[i]. "Histochemical studies on bone and kidney and estrogens of mucoprotein in bone and serum in rats after large doses of parathyroid hormone indicate that depolymerization of the ground substance of bone and cartilage takes place, and the mucoprotein of the serum increases considerably. Renal damage may occur because of blocking of the renal tubules by plugs of mucoprotein." - Chem. Abstr.

911
Gérard, G. ESTUDIO HISTOQUÍMICO DE LA OSIFICACIÓN EN EL HOMBRE. II. MUCOPOLISACÁRIDOS EN LA OSIFICACION ENDOCONDRAL. Arch. Soc. biol. Montevideo, 1951, 18: 103-109. pl. 14 refs. Abstracted in: Chem. Abstr., 1952, 46: 11372[h].

912
Gersh, I. GROUND SUBSTANCE AND THE PLASTICITY OF CONNECTIVE TISSUES. Harvey Lectures, Balt., 1949-50, 45: 211-241. 8 pl. 27 refs. See particularly, p. 221-222 for review on bone and cartilage. Abstracted in: Chem. Abstr., 1952, 46: 11375[g].

913
Glegg, R. E., Eidinger, D. and Leblond, C. P. PRESENCE OF CARBOHYDRATES DISTINCT FROM ACID MUCOPOLYSACCHARIDES IN CONNECTIVE TISSUE. Science, 1954, 120: 839-840.

914
Glock, G. E. GLYCOGEN AND CALCIFICATION. J. Physiol., Lond., 1940, 98: 1-11. 25 refs. Abstracted in: Chem. Abstr., 1940, 34: 4446[1]; Biol. Abstr., Balt., 1941, 15: No. 440.

915
Godard, H. LA CROISSANCE OSSEUSE ET LES MUCOPOLYSACCHARIDES. Presse méd., 1952, 60: 1799-1802. 6 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1953, 23: No. 3331.

916
Godard, H. LES MUCOPOLYSACCHARIDES DE L'OS ET DU CARTILAGE. (L'OSTÉOGÉNÈSE DE CROISSANCE EPIPHYSAIRE). C. rend. Ass. anat., 1952, 38.meet., 543-556. 16 refs.

917
Godard, H. LES MUCOPOLYSACCHARIDES DE L'OS FOLLICULINIQUE. C. rend. Ass. anat., (1952) 1953, 39.meet., 81-83.

918
Godard, H. L'OS DE CROISSANCE ÉPIPHYSAIRE ET LES MUCOPOLYSACCHARIDES. Arch. anat. micr., Par., 1951, 40: 223-245. 23 refs. Abstracted in: Biol. Abstr., Balt., 1952, 26: No. 31235.

919
Godard, H. L'OSTÉOGÉNÈSE DE CROISSANCE ÉPIPHYSAIRE ET LES MUCOPOLYSACCHARIDES DE L'OS. Presse méd., 1952, 60: 414-416. 8 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1952, 22: No. 2596.

920
Godard, H. OSTÉOGENÈSE DE CROISSANCE ÉPIPHYSAIRE. LES MUCOPOLYSACCHARIDES DE L'OS ET DU CARTILAGE. 251p. Paris, 1952. (Thèse Doct.-Fac. sc.)

921
Hass, G. M. STUDIES OF CARTILAGE: II. A QUANTITATIVE STUDY OF THE STABILIZING ACTION OF CRYSTAL VIOLET ON TISSUE POLYSACCHARIDE COMPOUNDS. Arch. Path., Chic., 1942, 33: 163-173. Abstracted in: Biol. Abstr., Balt., 1942, 16: 16218.

922
Hisamura, H. BIOCHEMICAL STUDIES ON CARBOHYDRATES. XXXIX. CARBOHYDRATES IN THE MOLECULE OF OSSEOMUCOID. J. Biochem., Tokyo, 1938, 28: 473-478. 4 refs.

923
Hudack, S. S., Blunt, J. W., Jr., Higbee, P. and Kearin, G. M. A PROBABLE ACID MUCOPOLYSACCHARIDE PRESENT IN GRANULATION TISSUE. Proc. Soc. Exp. Biol., N. Y., 1949, 72: 526-528. 6 refs. Chemical and histochemical observations on a mucopolysaccharide found in the calluses of healing fractured bones of rabbits.

924
Kuzin, A. M., Garzunova, G. A. and Mumul, A. V. OB UCHASTII KOMPLEKSNYKH POLISAKHARIDOV V UGLEVODNOM OBMENE. [PARTICIPATION OF COMPLEX POLYSACCHARIDES IN CARBOHYDRATE METABOLISM] Doklady Akad. nauk SSSR, 1953, 92: 637-640. 3 refs. Abstracted in: Chem. Abstr., 1954, 48: 5328[c].

925
Leblond, C. P. DISTRIBUTION OF PERIODIC ACID-REACTIVE CARBOHYDRATES IN THE ADULT RAT. Am. J. Anat., 1950, 86: 1-49. 12 pl. 26 refs. The various organs and tissues studied inclused bone and cartilage.

926
Malmgren, H. and Sylvén, B. BIOPHYSICAL AND PHYSIOLOGICAL INVESTIGATIONS ON CARTILAGE AND OTHER MESENCHYMAL TISSUES. V. IDENTIFICATION OF THE POLYSACCHARIDE OF BOVINE NUCLEI PULPOSI. Biochim. biophys. acta, Amst., 1952, 9: 706-707. 10 refs. Abstracted in: Chem. Abstr., 1953, 47: 3363[h].

927
Mancini, R. E. and Bacarini, E. MUCOPROTEINAS DEL TEJIDO CONECTIVO-ADULTO Y EMBRIONARIO. Rev. Soc. argent. biol., 1951, 27: 27-37. 21 refs. English summary.

928
Maurer, P. H. and Hudack, S. S. THE ISOLATION OF HYALURONIC ACID FROM CALLUS TISSUE OF EARLY HEALING. Arch. Biochem., N. Y., 1952, 38: 49-53. 31 refs. Abstracted in: Chem. Abstr., 1953, 47: 648[e]; Biol. Abstr., Balt., 1953, 27: No. 1105. "A polysaccharide was isolated from callus tissue of healing rabbit bone fractures. It is very similar to hyaluronic acid in its chemical properties and in its behavior toward pneumococcal hyaluronidase preparation." - Chem. Abstr.

929
Meyer, K. HYALURONIC ACID, CHONDROITIN SULPHATES AND THEIR PROTEIN COMPLEXES. Discuss. Faraday Soc., 1953, No. 13, 271-275. 23 refs. "The evidence for the existence of reversible polar complexes of hyaluronic acid in native fluids is reviewed. Data on cartilage are reviewed and explained by the assumption of polar linkages with protein. In contrast, the chondroitin sulphates of connective tissue are stably linked to protein."

GLYCOPROTEINS AND MUCOPOLYSACCHARIDES OF BONE AND CARTILAGE (Continued)

930
Meyer, K. THE MUCOPOLYSACCHARIDES OF THE INTERFIBRILLAR SUBSTANCE OF THE MESENCHYME. Ann. N. York Acad. Sc., 1950, 52: 961-963. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 30159.

931
Rogers, H. J. CONCENTRATION AND DISTRIBUTION OF POLYSACCHARIDES IN HUMAN CORTICAL BONE AND THE DENTINE OF TEETH. Nature, Lond., 1949, 164: 625-626. 10 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1949-50, 19: No. 4992; Excerpta med., Sect. 2, 1950, 3: No. 5101.

932
Rogers, H. J. THE POLYSACCHARIDE ASSOCIATED WITH THE ORGANIC MATRIX OF BONE. Biochem. J., Lond., 1951, 49: Proc. 12-13. 2 refs. An abstract.

933
Schittenhelm, A. and Eisler, B. ÜBER DIE WIRKUNG DES THYROXINS AUF DEN GLYKOGENGEHALT DES KNORPELS. Zschr. ges. exp. Med., 1933, 86: 383-386. Abstracted in: Biol. Abstr., Balt., 1936, 10: No. 5699; Chem. Abstr., 1933, 27: 2217.

See:

17 78 222 408 678 784 1198

GLYCOPROTEINS AND MUCOPOLYSACCHARIDES OF BONE AND CARTILAGE - CHONDROITIN SULFATE

934
Benditt, E. P. and French, J. E. REDUCTION IN METACHROMASIA OF CARTILAGE AS AN INDICATOR OF CHONDROITINASE ACTIVITY. J. Nat. Cancer Inst., 1952, 13: 234-235. An abstract. "From this evidence it is concluded that the reduction of metachromasia may be due to at least three mechanisms: 1) The action of a specific chondroitin depolymerase (T.E.). 2) The release of a polysaccharide from its combination with other tissue substances (M.E.). 3) The combination of a protein carrying a residual positive charge with chondroitin sulfate thereby preventing subsequent combination with the basic dye (H)."

935
Boström, H. ON THE METABOLISM OF THE SULFATE GROUP OF CHONDROITINSULFURIC ACID. J. Biol. Chem., 1952, 196: 477-481. 10 refs. "The uptake and elimination of radioactive sulfate in the chondroitin sulfuric acid of the cartilage of adult rats were followed for 16 days. The chondroitinsulfuric acid was isolated at different time intervals after intraperitoneal injection of S^{35}-labeled sodium sulfate. The maximum uptake was reached in 24 hours and the curve declined slowly to half the maximum value on the 17th day after injection."

936
Boström, H. and Aqvist, S. UTILIZATION OF S^{35} LABELLED SODIUM SULPHATE IN THE SYNTHESIS OF CHONDROITIN SULPHURIC ACID, TAURINE, METHIONINE AND CYSTINE. Acta chem. scand., 1952, 6: 1557-1559. 14 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1953, 23: No. 3287. Adult white rats, injected intraperitoneally with S^{35}-labelled sodium sulfate were sacrificed at intervals up to 24 hours and determinations made of the incorporation of the isotope. A high percentage was found to have combined with the chondroitin sulphuric acid of the costal cartilage. Liver taurine showed a low uptake but no trace was found in liver cystine and methionine. It is suggested that sulfate uptake occurs mainly in mucopolysaccharide-containing ester sulfates.

937
Boström, H. and Månsson, B. THE DEMONSTRATION OF A LIVER FACTOR STIMULATING THE SULFATE EXCHANGE OF CHONDROITIN SULPHURIC ACID. Acta chem. scand., 1953, 7: 1014. 2 refs. Abstracted in: Biol. Abstr., Balt., 1954, 28: No. 10488.

938
Boström, H. and Månsson, B. EXCHANGE OF THE ACETYL GROUP OF CHONDROITINSULFURIC ACID IN SLICES OF CARTILAGE. Acta chem. scand., 1952, 6: 1559-1561. 4 refs. Abstracted in: Chem. Abstr., 1953, 47: 9466a.

939
Boström, H. and Månsson, B. ON THE ENZYMATIC EXCHANGE OF THE SULFATE GROUP OF CHONDROITINSULFURIC ACID IN SLICES OF CARTILAGE. J. Biol. Chem., 1952, 196: 483-487. 18 refs. Abstracted in: Brit. Abstr., Sect. AIII, 1953, p. 471. "Slices of cartilage incubated at 37° in Krebs' solution with $Na_2{}^{35}SO_4$ showed an uptake of ^{35}S into the chondroitin sulphuric acid which increased with time. Boiled cartilage, and cartilage kept at 0° in an amount of N_2, showed no similar uptake of ^{35}S. These experiments indicate the presence in cartilage of an enzyme system which regulates the exchange of SO_4'' of chondroitin sulphuric acid." - Brit. Abstr.

940
Bray, H. G., Gregory, J. E. and Stacey, M. CHEMISTRY OF TISSUES. I. CHONDROITIN FROM CARTILAGE. Biochem. J., Lond., 1944, 38: 142-146. 21 refs. Abstracted in: Biol. Abstr., Balt., 1945, 19: No. 15660.

941
CHONDROITIN SULFATE. (Editorial). J. Am. M. Ass., 1951, 146: 1327. Comments on Dziewiatkowski's work, in which the rate of formation of chondroitin sulfate in the knee joints of rats was determined.

942
Dziewiatkowski, D. D. ISOLATION OF CHONDROITIN SULFATE S^{35} FROM ARTICULAR CARTILAGE OF RATS. J. Biol. Chem., 1951, 189: 187-190. 5 refs. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 22840; Ber. ges. Physiol., 1952-53, 151: 295.

943
Dziewiatkowski, D. D., Benesch, R. E. and Benesch, R. ON THE POSSIBLE UTILIZATION OF SULFATE SULFUR BY THE SUCKLING RAT FOR THE SYNTHESIS OF CHONDROITIN SULFATE AS INDICATED BY THE USE OF RADIOACTIVE SULFUR. J. Biol. Chem., 1949, 178: 931-938. Abstracted in: Nutrit. Abstr., Aberdeen, 1949-50, 19: No. 2423. "On the basis of a partial separation of chondroitin sulfate from the cartilage of the knee joint of animals injected with sodium sulfate, containing S^{35}, it is suggested that the major portion, if not all, of the labeled sulfate sulfur retained by the articular cartilage may be retained therein as chondroitin sulfate."

944
Einbinder, J. and Schubert, M. CRYSTALLIZATION OF CALCIUM CHONDROITIN SULFATE. J. Biol. Chem., 1951, 191: 591-597. 15 refs. "By starting with amorphous potassium chondroitin sulfate... it has been found possible, by conversion to a neutral calcium salt, to separate it into a small amorphous fraction and a large crystalline fraction. These fractions have the same composition and differ only slightly in solubility and specific rotation. Analytical data may indicate the presence of an as yet unidentified constituent."

GLYCOPROTEINS AND MUCOPOLYSACCHARIDES OF BONE AND CARTILAGE - CHONDROITIN SULFATE (Continued)

945
Einbinder, J. and Schubert, M. SEPARATION OF CHONDROITIN SULFATE FROM CARTILAGE. J. Biol. Chem., 1950, 185: 725-730. 12 refs. Abstracted in: Excerpta med., Sect. 2, 1951, 4: No. 3343.

946
Grisham, W. HISTOCHEMICAL STUDY OF MUCOPOLYSACCHARIDES IN VARIOUS NORMAL TISSUES. Bull. Internat. Ass. M. Mus., Montreal, 1948, No. 28, 104-117. 25 refs. Abstracted in: Biol. Abstr., Balt., 1950, 24: No. 4251.

947
Hass, G. M. CARTILAGE. IV. A MORPHOLOGIC AND CHEMICAL ANALYSIS OF AGING HUMAN COSTAL CARTILAGE. Arch. Path., Chic., 1943, 35: 275-284. 4 refs. Abstracted in: Chem. Abstr., 1943, 37: 3142[9]. "The amount of chondroitinsulfuric acid in cartilage increases until the fourth decade of life and then decreases. The decrease is correlated with the beginning of the deposition of calcium. It is suggested that calcification of cartilage is caused by failure of the mechanism responsible for the maintenance of the intracellular matrix." - Chem. Abstr.

948
Hisamura, H. BIOCHEMICAL STUDIES ON CARBOHYDRATES. XXXVII. ON THE CARBOHYDRATES MOIETY OF CHONDROMUCOID. J. Biochem., Tokyo, 1938, 28: 217-226. 5 refs.

949
Layton, L. L., Denko, C. W., Scapa, S. and Frankel, D. R. INFLUENCE OF AGE UPON CHONDROITIN SULFATE SYNTHESIS BY THE TISSUES OF NORMAL DBA MICE. Cancer, Phila., 1952, 5: 405. 2 refs. Abstracted in: Biol. Abstr., Balt., 1952, 26: No. 18458.

950
Lecoq, R. and Champeau, M.-F. MODIFICATIONS HISTOLOGIQUES ET HISTOCHIMIQUES OSSEUSES DES RATS ET DES COBAYES SOUMIS À DIFFÉRENTS RÉGIMES RACHITIGÈNES. C. rend. Soc. biol., 1947, 141: 995-996. 1 ref. A study of chondroitin sulphuric acid in rats and guinea pigs with experimental rickets indicated a change in the composition of cartilage before the appearance of bone lesions. A phosphorus-phosphatase transfer between blood and bone was also noted: serum phosphorus decreased while bone phosphorus increased, bone phosphatase decreased and serum phosphatase increased.

951
Levey, S. and Sheinfeld, S. STUDIES ON THE REMOVAL OF PROTEIN FROM CHONDROITIN SULFATE. J. Michigan M. Soc., 1951, 50: 1028-1030. 8 refs.

952
Loewi, G. CHANGES IN THE GROUND SUBSTANCE OF AGING CARTILAGE. J. Path. Bact., Lond., 1953, 65: 381-388. 15 refs. Human costal cartilage was studied. "The content of chondroitin and its degree of polymerisation have been found to be inversely proportional to age. It is suggested that depolymerisation of chondroitin, by increasing the number of side chains available for acceptance of calcium ions, may be one of the factors involved in the calcification of cartilage."

953
Mathews, M. B. CHONDROITINSULFURIC ACID - A LINEAR POLYELECTROLYTE. Arch. Biochem., N. Y., 1953, 43: 181-193. 26 refs.

954
Matthews, B. F. COLLAGEN CHONDROITIN SULFATE RATIO OF HUMAN ARTICULAR CARTILAGE RELATED TO FUNCTION. Brit. M. J., 1952, 2: 1295. Abstracted in: Excerpta med., Sect. 1, 1953, 7: No. 2133. "The ratio in weight-bearing cartilage was much smaller than in non-weight-bearing cartilage.

955
Meyer, A. THE PRESENCE OF CHONDROITINSULFURIC ACID IN THE CARTILAGE IN SCURVY. Internat. Zschr. Vitaminforsch., Bern, 1944, 14: 332-339. 4 refs. Abstracted in: Chem. Abstr., 1947, 41: 2797[a].

956
Meyer, K. and Rapport, M. M. THE HYDROLYSIS OF CHONDROITIN SULFATE BY TESTICULAR HYALURONIDASE. Arch. Biochem., N. Y., 1950, 27: 287-293. 15 refs.

957
Meyer, K. and Smyth, E. M. ON GLYCOPROTEINS. VI. THE PREPARATION OF CHONDROITINSULFURIC ACID. J. Biol. Chem., 1937, 119: 507-510. 6 refs. Analytical data are given for the acid calcium salt of chondroitin sulfuric acid prepared by this method. The major portion of the cartilage is a protein salt of chondroitin sulfuric acid.

958
Meyer, K. H., Odier, M. E. and Siegrist, A. E. CONSTITUTION DE L'ACIDE CHONDROÏTINESULFURIQUE. Helvet. chim. acta, 1948, 31: 1400-1419. 55 refs.

959
Miller, Z. B., Waldman, J. and McLean, F. C. THE EFFECT OF DYES ON THE CALCIFICATION OF HYPERTROPHIC RACHITIC CARTILAGE IN VITRO. J. Exp. M., 1952, 95: 497-508. 33 refs. Abstracted in: Biol. Abstr., Balt., 1952, 26: No. 25193; Chem. Abstr., 1952, 46: 10383[e]. "Rachitic cartilage slices which no longer calcify in inorganic phosphate as a result of treatment with basic dyes show normal calcification in the presence of organic phosphate esters. These results are discussed in terms of the possibility that chondroitin sulfate ester participates in normal calcification."

960
Miyazaki, T. BIOCHEMICAL STUDIES ON CARBOHYDRATES. V. A MICRO METHOD FOR QUANTITATIVE ESTIMATION OF CHONDROITINSULFURIC ACID IN CARTILAGE. J. Biochem., Tokyo, 1934, 20: 211-222. 10 refs. Abstracted in: Chem. Abstr., 1935, 29: 1111[7]. Results obtained by use of this technique are also presented.

961
Miyazaki, T. BIOCHEMICAL STUDIES ON CARBOHYDRATES. VI. DETERMINATION OF CHONDROITINSULFURIC ACID IN CARTILAGE AND BONE. J. Biochem., Tokyo, 1934, 20: 223-231. 3 refs. Abstracted in: Chem. Abstr., 1935, 29: 1111[7]. The distribution of chondroitinsulfuric acid in various parts and kinds of cartilage, its variation of content along with growth and its appearance in bones in cases of rickets are described.

962
Partridge, S. M. THE CHEMISTRY OF CONNECTIVE TISSUES. I. THE STATE OF COMBINATION OF CHONDROITIN SULPHATE IN CARTILAGE. Biochem. J., Lond., 1948, 43: 387-397. 24 refs. Abstracted in: Chem. Abstr., 1949, 43: 3910[h]; Ber. ges. Physiol., 1951, 144: 179. Findings suggest that chondroitin sulphate has an important role in the organization of collagen in developing connective tissue.

GLYCOPROTEINS AND MUCOPOLYSACCHARIDES OF BONE AND CARTILAGE - CHONDROITIN SULFATE (Continued)

963
Rubin, P. S. and Howard, J. E. HISTOCHEMICAL STUDIES ON THE ROLE OF ACID MUCO-POLYSACCHARIDES IN CALCIFIABILITY AND CALCIFICATION. Tr. Conf. Metab. Interrelat., 1950, 2.meet., 155-166. 13 refs. The studies are interpreted as indicating competition of the cations for a specific substrate in cartilage matrix, - chondroitin sulfuric acid.

964
Sadhu, D. P. STUDIES ON THE NUTRITIONAL SIGNIFICANCE OF LACTOSE. III. ASCORBIC ACID AND TRANSGLYCOSIDATION. Ind. J. Physiol., 1952, 6: 49-53. 12 refs. "Changes in brain chemistry and in Itin-sulphate distribution [in skin and in the long bones] in scurvy lead to the idea that ascorbic acid must have a definite role in the transglycosidation process."

965
Sobel, A. E. and Burger, M. CALCIFICATION. XIV. INVESTIGATION OF THE ROLE OF CHONDROITIN SULFATE IN THE CALCIFYING MECHANISM. 17p. Office of Naval Research, Washington, Technical Report Nr 180 025, Jan. 1954. 16 refs.

966
Sylvén, B. CARTILAGE AND CHONDROITIN SULPHATE. I. THE PHYSIOLOGICAL ROLE OF CHONDROITIN SULPHATE IN CARTILAGE. J. Bone Surg., 1947, 29: 745-752. 52 refs. Abstracted in: Excerpta med., Sect. 5, 1949, 2: No. 266.

See:

65 66 120 121 122 929

GLYCOPROTEINS AND MUCOPOLYSACCHARIDES OF TISSUES OTHER THAN BONE AND CARTILAGE

967
Brux, J. de and du Boistesselin, R. MODIFICATIONS HISTOLOGIQUES ET HISTOCHIMIQUES DU TISSU CONJONCTIF SOUS L'INFLUENCE DE DIFFÉRENTES ACTIONS HORMONALES. Presse méd., 1953, 61: 600-602. 34 refs.

968
Day, T. D. THE NATURE AND SIGNIFICANCE OF THE CEMENTING SUBSTANCE IN INTERSTITIAL CONNECTIVE TISSUE. J. Path. Bact., Lond., 1947, 59: 567-573. 2 pl. 6 refs.

969
Duran-Reynals, F., ed. THE GROUND SUBSTANCE OF THE MESENCHYME AND HYALURONIDASE. Ann. N. York Acad. Sc., 1950, 52: Art. 7, 943-1196. A series of papers presented at a Conference on The Ground Substance of the Mesenchyme and Hyaluronidase held by the Section of Biology of The New York Academy of Sciences on December 3 and 4, 1948.

970
Gersh, I. and Catchpole, H. R. THE ORGANIZATION OF GROUND SUBSTANCE AND BASEMENT MEMBRANE AND ITS SIGNIFICANCE IN TISSUE INJURY, DISEASE AND GROWTH. Am. J. Anat., 1949, 85: 457-521. 7 pl. 82 refs. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 27809.

971
Mancini, R. E. and Sacerdote De Lustig, E. ACCION DE LA DESOXICORTICOSTERONA Y CORTISONA SOBRE LAS MUCOPROTEINAS DE LOS FIBROBLASTOS IN VITRO. Rev. Soc. argent. biol., 1951, 27: 86-94. 22 refs.

972
Meyer, K. THE BIOLOGICAL SIGNIFICANCE OF HYALURONIC ACID AND HYALURONIDASE. Physiol. Rev., 1947, 27: 335-359. 87 refs.

973
Meyer, K. THE CHEMISTRY AND BIOLOGY OF MUCOPOLYSACCHARIDES AND GLYCOPROTEINS. Sympos. Quant. Biol., 1938, 6: 91-102. 49 refs.

974
Meyer, K. CHEMISTRY OF CONNECTIVE TISSUE, POLYSACCHARIDES. Tr. Conf. Connective Tissues, (1950) 1951, 1: 88-100. 10 refs. Abstracted in: Chem. Abstr., 1953, 47: 5515b.

975
Meyer, K. MUCOIDS AND GLYCOPROTEINS. Advance. Protein Chem., 1945, 2: 249-273. Approx. 110 refs.

976
Meyer, K. and Rapport, M. M. THE MUCOPOLYSACCHARIDES OF THE GROUND SUBSTANCE OF CONNECTIVE TISSUE. Science, 1951, 113: 596-599. 21 refs.

977
Ogston, A. G. and Stanier, J. E. COMPOSITION AND PROPERTIES OF HYALURONIC ACID COMPLEX OF OX SYNOVIAL FLUID. Discuss. Faraday Soc., 1953, No. 13, 275-287. pl. 21 refs. Discussion: p. 281-287.

978
Orr, S. F. D. INFRA-RED SPECTROSCOPIC STUDIES OF SOME POLYSACCHARIDES. Biochem. biophys. acta, Amst., 1954, 14: 173-181. 27 refs.

979
Persson, B. H. STUDIES ON CONNECTIVE TISSUE GROUND SUBSTANCE. I. HISTOCHEMICAL FEATURES OF GROUND SUBSTANCE MUCOPOLYSACCHARIDES. II. ORGANIZATION OF THE GROUND SUBSTANCE IN ASCORBIC ACID DEFICIENCY AND ITS MODIFICATION BY THE ACTION OF CORTISONE. Acta Soc. med. upsal., 1953, 58: Suppl. 2. 106p. 7 pl. 189 refs. Abstracted in: Excerpta med., Sect. 1, 1954, 8: No. 976.

980
Rudall, K. M. FUNDAMENTAL STRUCTURES IN BIOLOGICAL SYSTEMS. Prog. Biophys., 1950, 1: 39-72. 6 pl. 36 refs. Contents: Polypeptides and proteins. - Polysaccharides. - Polynucleotides.

See:

585

GLYCOPROTEINS AND MUCOPOLYSACCHARIDES OF TISSUES OTHER THAN BONE AND CARTILAGE - CHONDROITIN SULFATE

981
Fürth, O., Bruno, T., Boyer, R. and Peschek, C. ZUR KENNTNIS DER CHONDROITINSCHWEFELSÄURE. I. Biochem. Zschr., 1937, 294: 153-173. Approx. 18 refs. Abstracted in: Chem. Abstr., 1938, 32: 12894.

982
Hisamura, H. BIOCHEMICAL STUDIES ON CARBOHYDRATES. XXXVI. A CRITIQUE ON PREPARATION METHODS OF CHONDROITINSULFURIC ACID FROM THE VIEWPOINT OF THE MOLISCH REACTION. Biochem. J. Tokyo, 1938, 28: 141-148. 11 refs.

983
Layton, L. L. EFFECT OF CORTISONE UPON CHONDROITIN SULFATE SYNTHESIS BY ANIMAL TISSUES. Proc. Soc. Exp. Biol., N. Y., 1951, 76: 596-598. 9 refs.

984
Meyer, K., Palmer, J. W. and Smyth, E. M. ON GLYCOPROTEINS. V. PROTEIN COMPLEXES OF CHONDROITINSULFURIC ACID. J. Biol. Chem., 1937, 119: 501-507. 16 refs.

See:

588 589

GROWTH AND DEVELOPMENT

see also HORMONAL INFLUENCE - ADRENAL CORTEX, - PARATHYROID, - PITUITARY, - SEX HORMONES, MALE, and - THYROID; MECHANICAL INFLUENCE; NEURAL INFLUENCE; NUTRITIONAL INFLUENCE - MINERAL, and - PROTEIN; SALIVARY GLANDS - INFLUENCE; TISSUE CULTURE; TISSUE TRANSPLANTS; VITAMIN INFLUENCE - VITAMIN A, - VITAMIN B, and - VITAMIN D

985
Aries, L. J. EXPERIMENTAL ANALYSIS OF THE GROWTH PATTERN AND RATES OF APPOSITIONAL AND LONGITUDINAL GROWTH IN THE RAT FEMUR. Surg. Gyn. Obst., 1941, 72: 679-689. 23 refs.

986
*Augier, M. SQUELETTE CÉPHALIQUE. IN: TRAITÉ D'ANATOMIE HUMAINE. (Nicolas, A., ed.) 586p. Paris, Masson et Cie, 1931, Tome 1, fasc. 1. Abstracted in: Biol. Abstr., Balt., 1934, 8: No. 14390.

987
Bauer, G. C. H. THE IMPORTANCE OF BONE GROWTH AS A FACTOR IN THE REDISTRIBUTION OF BONE SALT. I. REDISTRIBUTION OF RADIO-ACTIVE CALCIUM IN THE SKELETON OF RATS. J. Bone Surg., 1954, 36A: 375-380. 10 refs. "Young rats were killed at varying time intervals after the administration of radio-active calcium (Ca^{45}). The specific activities of radio-active calcium were determined for various parts of the skeleton. It was found that the ratio of the specific activities of diaphyseal bone to that of epiphyseal bone rose continually from a value below unity to a value above unity over an interval of as long as sixty-seven days between the administration of the radio-active calcium and the death of the animals. This means that during this time no state of equilibrium was reached between different parts of the skeleton and body fluid with respect to the distribution of radio-active calcium. It was further shown that the redistribution of radio-active calcium in different parts of the skeleton varied with the rate of growth of these parts."

988
Bauer, G. C. H. THE IMPORTANCE OF BONE GROWTH AS A FACTOR IN THE REDISTRIBUTION OF BONE SALT. II. REDISTRIBUTION OF RADIO-ACTIVE PHOSPHORUS IN THE SKELETON OF RATS. J. Bone Surg., 1954, 36A: 381-386. 12 refs. Conclusions: "The redistribution of bone salt in different parts of the skeleton varies with the rate of growth of these parts. Compared to skeletal growth, ionic exchange and recrystallization are of minor importance in redistribution. Parts of the skeleton which differ in rate of growth can thus never reach equilibrium with respect to the distribution of radio-active calcium after administration of these isotopes."

989
Bergmann, E. ÜBER DAS LÄNGENWACHSTUM DER KNOCHEN. Deut. Zschr. Chir., 1931, 233: 149-194. References, p. 193-194.

990
Bevelander, G. and Johnson, P. L. A HISTOCHEMICAL STUDY OF THE DEVELOPMENT OF MEMBRANE BONE. Anat. Rec., 1950, 108: 1-21. 38 refs. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 14038; Chem. Abstr., 1952, 46: 8743g; Excerpta med., Sect. 1, 1951, 5: No. 508.

991
Bick, E. M. and Copel, J. W. LONGITUDINAL GROWTH OF THE HUMAN VERTEBRA. A CONTRIBUTION TO HUMAN OSTEOGENESIS. J. Bone Surg., 1950, 32A: 803-814. 23 refs. Abstracted in: Excerpta med., Sect. 9, 1952, 6: No. 638.

992
Bisgard, J. D. and Bisgard, M. E. LONGITUDINAL GROWTH OF LONG BONES. Arch. Surg., 1935, 31: 568-578. 12 refs.

993
Blechschmidt, E. DIE FRUHEMBRYONALE STRUKTUR-ENTWICKLUNG DER GLIEDMASSEN. ENTWICKLUNG DER EXTREMITÄTEN BEIM MENSCHEN. TEIL III. Zschr. Anat. Entw., 1950-1951, 115: 617-657. 15 refs.

994
Boeminghaus, H. UNTERSUCHUNGEN ÜBER DIE BEEINFLUSSBARKEIT DES KNOCHENWACHSTUM UND DER KNOCHENREGENERATION. Deut. Zschr. Chir., 1932-1933, 238: 684-704. Approx. 55 refs.

995
Brash, J. C. SOME PROBLEMS IN THE GROWTH AND DEVELOPMENTAL MECHANICS OF BONE. Edinburgh M. J., n.s. 1934, 41: 305-319; 363-386. 44 refs.

996
Chapchal, G. and Zeldenrust, J. PROEFNEMINGEN TER HEVORDERING VAN DEN LENGTEGROEI DER LANGE PIJPBEENDEREN DOOR PRIKKELING DER GROEISCHIJVEN. Ned. tschr. geneesk., 1946, 90: 249-253. 2 pl.

997
Charles, S. W. MADDER EXPERIMENTS AND THE GROWTH OF BONE. J. Anat., Lond., 1941-1942, 76: 227.

998
Cocchi, U. VERGLEICHEND-ANATOMISCHE STUDIE ZUR FRAGE DER SKELETTREIFUNG. Fortsch. Röntgenstrahl., 1949, 72: 32-47. 27 refs. Abstracted in: Excerpta med., Sect. 1, 1950, 4: No. 1554.

999
Cohen, J. NORMAL VARIATION OF THE COSTO-CHONDRAL JUNCTION. Arch. Path., Chic., 1948, 45: 246-258. 16 refs.

1000
Cotellessa, G. and De Maestri, A. STUDIO ANALITICO DELL'ACCRESCIMENTO DELLE OSSA LUNGHE. Minerva pediat., Tor., 1951, 3: 79-82.

1001
Coventry, M. B., Ghormley, R. K. and Kernohan, J. W. THE INTERVERTEBRAL DISC: ITS MICROSCOPIC ANATOMY AND PATHOLOGY. PART I. ANATOMY, DEVELOPMENT AND PHYSIOLOGY. J. Bone Surg., 1945, 27: 105-112. 26 refs.

1002
Crétin, A. CONTRIBUTION HISTOCHIMIQUE À L'ÉTUDE DE L'OSSIFICATION ET DE L'ALLONGEMENT OSSEUX. Arch. anat., Strasb., 1952, 34: 149-156. Differentiation of bone types, discussion of the role of the muscles and myoglobulin iron in early ossification and description of the growth and development of the long bones.

1003
Cuveland, E. F. de. EIN BEITRAG ZUR FRAGE DER ENTSTEHUNG DER FEMURTORQUIERUNG IM INTRAUTERINEN LEBEN. Arch. orthop. Unfallchir., 1950, 44: 213-223. 29 refs.

1004
Danini, E. S. O FAKTORAKH OKOSTENENIA. [OSSIFICATION FACTORS] Usp. sovrem. biol., 1946, 21: 235-248. 57 refs. The author reviews the literature and draws the following conclusions. Cambium cells of connective tissue in different vertebrates may be transformed into skeletogenic cells. Such transformation may represent an atypical determination process. It is caused by factors basically chemical in nature and possibly connected with chronic inflammatory phenomena in the area of neoformation. Mechanical impulses play a secondary role. The possibility is not ruled out that certain intratissular changes such as alteration in tissue turgor, tension, etc. are involved.

GROWTH AND DEVELOPMENT (Continued)

1005
Debrunner, H. and Petri, C. STUDIEN ZUR ENTWICKLUNG DES MENSCHLICHE SKELETS. I. Allgemeine Zeile. Zschr. Orthop., 1939, 70: 25-38. 18 refs.

1006
Depreux, F. POUSSÉES ET CRISES DE CROISSANCE DE L'HUMÉRUS ET DU FÉMUR FOETAUX. ÉTUDE COMPARATIVE. Bull. Soc. anthrop., Par., 1951, 2: 182-188.

1007
Dodds, G. S. THE LIFE HISTORY OF A BONE. Proc. W. Virginia Acad. Sc., (1936) 1937, 10: 39. Abstract of a review on bone growth and development. Many of the observations presented have been previously published.

1008
*Felts, W. J. THE PRENATAL DEVELOPMENT OF THE HUMAN FEMUR. 108p. Ann Arbor, 1952. (Diss.-Univ. Mich.). Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 9956.

1009
Follis, R. H., Jr. and Park, E. A. SOME OBSERVATIONS ON BONE GROWTH WITH PARTICULAR RESPECT TO ZONES AND TRANSVERSE LINES OF INCREASED DENSITY IN THE METAPHYSIS. Am. J. Roentg., 1952, 68: 709-724. 21 refs. Includes both clinical and experimental observations of zones of increased density in the metaphysis during disturbance of bone formation. The analysis brings out the independence of chondrogenic and osteogenic activities from osteogenic and osteolytic functions.

1010
Fontaine, R. L'IDENTIFICATION DES OS. METHODE HISTOLOGIQUE. Union méd. Canada, 1935, 64: 1214-1218.

1011
Franceschini, M ACCRESCIMENTO CORPOREO DEL FETO E NEONATO UMANO ED ATTIVITÀ PROLIFERATIVA DELLE CARTILAGINI DI CONIUGAZIONE DELLE OSSA LUNGHE DEGLI ARTI; NOTA PREVENTIVA. Minerva gin., Tor., 1953, 5: 49-51. 14 refs. It is concluded that "a close relationship exists between the height of the seried columns of epiphyseal cartilage of the long bones..., on the one hand, and the proliferative activity, rhythm of statural growth, and elongation of the extremities on the other."

1012
Fridenshtein, A. Ya. K GISTOGENEZU OSNOVNYKH KOSTEI VISTSERAL'NOGO SKELETA MLEKOPITAIUSHCHIKH ¶ PTITS. [HISTOGENESIS OF THE BASIC BONES OF THE VISCERAL SKELETON OF MAMMALS AND BIRDS] Doklady Akad. nauk SSSR, 1950, 71: 159-161. 10 refs. Rat and chick embryos as well as rats and chickens were used in the experiment. A study of the peculiarities of the visceral skeleton as manifested by its basic bones was made. Findings gave evidence of a special mechanism of periostal ossification which is common to all bones of the visceral skeleton.

1013
Gardner, E. and Gray, D. J. PRENATAL DEVELOPMENT OF THE HUMAN SHOULDER AND ACROMIOCLAVICULAR JOINTS. Am. J. Anat., 1953, 92: 219-276. 9 pl. 34 refs. A study of 65 human embryos and fetuses ranging from 12 to 370mm in crown-rump length. The skeleton elements are described at the various stages of development; at 22mm, their general form resembles that of the adult.

1014
Geller, S. PHYSIOLOGIE DE LA CROISSANCE OSSEUSE. France méd., 1953, 16: No. 6, 26-32.

1015
Haines, R. W. CARTILAGE CANALS. J. Anat., Lond., 1933, 68: 45-64. 13 refs. Abstracted in: Biol. Abstr., Balt., 1934, 8: No. 16550.

1016
Haines, R. W. THE EVOLUTION OF EPIPHYSES AND OF ENDOCHONDRAL BONE. Biol. Rev. Cambridge Philos. Soc., 1942, 17: 267-292. 76 refs.

1017
Hansard, S. L., Comar, C. L. and Plumlee, M. P. EFFECT OF CALCIUM STATUS, MASS OF CALCIUM ADMINISTERED AND AGE ON CA-45 METABOLISM IN THE RAT. Proc. Soc. Exp. Biol., N. Y., 1951, 78: 455-460. 11 refs. Abstracted in: Excerpta med., Sect. 2, 1952, 5: No. 5301. "Ca-45 introduced into the extracellular fluid is rapidly exchanged with the Ca of bone and practically all the Ca-45 originally present in the serum is recovered in the bone. At equilibrium, about 72 hours after oral ingestion, the specific activity of the bone is close to that of the serum.... The bone retains more Ca the more abundant this is in the digestive tract: the concentration of Ca-45 in the bone per unit absorbed is an index of the exchange potential of the bone. Where the bone takes up much Ca-45, the excreta contain a higher ratio of stable to radioactive Ca as a result of exchanges which have occurred in bone. Young rats absorb more Ca-45 than adults." - Excerpta med.

1018
Harris, H. A. BONE GROWTH IN HEALTH AND DISEASE; THE BIOLOGICAL PRINCIPLES UNDERLYING THE CLINICAL, RADIOLOGICAL, NAD HISTOLOGICAL DIAGNOSIS OF PERVERSIONS OF GROWTH AND DISEASE IN THE SKELETON. 248p. London, Oxford University Press, 1933. Bibliography: p. 233-239.

1019
Harris, H. A. LINES OF ARRESTED GROWTH IN THE LONG BONES IN CHILDHOOD; THE CORRELATION OF HISTOLOGICAL AND RADIOGRAPHIC APPEARANCES IN CLINICAL AND EXPERIMENTAL CONDITIONS. Brit. J. Radiol., 1931, 4: 561-588.

1020
Hellstadius, A. AN INVESTIGATION, BY EXPERIMENTS ON ANIMALS, OF THE ROLE PLAYED BY THE EPIPHYSIAL CARTILAGE IN LONGITUDINAL GROWTH. Acta chir. scand., 1947, 95: 156-166. pl. 5 refs. Abstracted in: Excerpta med., Sect. 5, 1949, 2: No. 991; Biol. Abstr., Balt., 1948, 22: No. 8516. "Thus longitudinal growth of diaphyses can take place without epiphyseal cartilage."

1021
Hellstadius, A. ON THE IMPORTANCE OF EPIPHYSEAL CARTILAGE TO GROWTH IN LENGTH. Acta orthop. scand., 1950, 20: 84-88. 3 refs. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 14029. Further evidence is presented to support an earlier conclusion that longitudinal growth can occur in the absence of epiphyseal cartilage.

1022
Hoff, M. LES RAIES TRANSVERSALES DES OS. 50p. Bourg, Berthod, 1935. (Thèse-Lyon). pl. 49 refs.

1023
Holtzer, H. AN EXPERIMENTAL ANALYSIS OF THE DEVELOPMENT OF THE SPINAL COLUMN. II. DISPENSABILITY OF THE NOTOCHORD. J. Exp. Zool., 1952, 121: 573-591. 35 refs. Abstracted in: Excerpta med., Sect. 1, 1953, 7: No. 1777. A study made with Amblystoma punctatum embryos. Observations indicate that the notochord is not essential for determination of the trunk pre-cartilage cells, chondrogenesis, or the modeling of the vertebral arch. It is thought that the function of the notochord is to restrict the A-P movements of the pre-cartilage ce

GROWTH AND DEVELOPMENT (Continued)

1024
*Hunter, D. THE METABOLISM OF BONE. Cambridge Univ. M. Soc. Mag., 1935, 12: 115-132. Abstracted in: Chem. Abstr., 1936, 30: 5172. "Effects of variation in Ca, P and calciferol intake, thyroxine, parathyroid extracts and scurvy upon bone growth were followed by the madder method." - Chem. Abstr.

1025
Imbert, R. and Santamaria. PREMIERS RÉSULTATS EXPÉRIMENTAUX CONCERNANT LA PHYSIOPATHOLOGIE DE L'APPAREIL DE CROISSANCE DES OS LONGS. Bull. Soc. chir. Marseille, 1947, 20: 75-79. Abstracted in: Excerpta med., Sect. 5, 1950, 3: No. 1312.

1026
Ingalls, T. H. EPIPHYSEAL GROWTH: NORMAL SEQUENCE OF EVENTS AT THE EPIPHYSEAL PLATE. Endocrinology, 1941, 29: 710-719. 11 refs. Abstracted in: Biol. Abstr., Balt., 1942, 16: No. 12616. A roentgenologic and histologic study made on the tibial epiphysis of the rat.

1027
Jasswoin, G. DE L'HISTOLOGIE COMPARATIVE DU SANG ET DU TISSU CONJONCTIF. XII. SUR L'ORIGINE DE LA SUBSTANCE FONDAMENTALE DE L'OS CHEZ LES MAMMIFERES. Arch. anat. micr., Par., 1934, 30: 411-452. pl. 43 refs.

1028
Johnson, M. L. and Grant, M. P. THE HISTOGENESIS OF THE CLAVICLE IN THE ALBINO RAT. Anat. Rec., 1932, 54: 375-387. 2 pl. 22 refs. Abstracted in: Biol. Abstr., Balt., 1934, 8: No. 9639. "The clavicle develops as a bone of dual origin. The first osseous material to appear is membrane bone which increases in amount and within 3 days becomes indistinguishably fused, first, with cartilage bone forming at the sternal region and then with replacement bone developing at the acromial area. The clavicle of the 7-day rat shows growing cartilage at both extremities, and it is clear that its development at this stage is entirely dependent upon periosteal and endochondral ossification."

1029
Kler, V. O. OBSHCHIE ZAKONOMERNOSTI TKANEVOI DIFERENTSIROVKI I REGENERATSII KOSTI. [GENERAL RULES COVERING TISSUE DIFFERENTIATION AND REGENERATION OF BONE] Arch. russ. anat., 1939, 21: 299-326. 84 refs. English summary, p. 367. Abstracted in: Biol. Abstr., Balt., 1940, 14: No. 10512. Embryonic development of the bone was studied in the human foetus and rabbit embryos. Post-embryonic development was studied mainly in dogs and rabbits.

1030
Korff, K. von. ÜBER DIE WEIDENREICH'SCHE THEORIE VON ZWEI VERSHCIEDENEN BILDUNGARTEN DER KNOCHEN- UND DENTIN-GRUNDSUBSTANZ. Anat. Anz., 1930-1931, 71: 65-76. 10 refs.

1031
Kreuzer, O. UEBER WACHSTUM UND FESTIGKEIT LANGER RÖHRENKNOCHEN IM LAUFE DES POSTEMBRYONALEN LEBENS; UNTERSUCHUNGEN AM OS FEMORIS VON CAVIA PORCELLUS L. Arch. Entwmech., 1932, 126: 148-184.

1032
Krompecher, I. DIE KNOCHENBILDUNG. 150p. Jena, G. Fischer, 1937. 5 pl. Approx. 175 refs.

1033
Lacroix, P. CONTRIBUTION À L'ÉTUDE DE LA MALADIE EXPOSTOSANTE. SUR LA MIGRATION DES EXOSTOSES AU COURS DE LA CROISSANCE. Rev. orthop., Par., 1950, 36: 20-25. 2 refs.

1034
Lacroix, P. EXCITATION DE LA CROISSANCE EN LONGUEUR DU TIBIA PAR DÉCOLLEMENT DE SON PÉRIOSTE DIAPHYSAIRE. Rev. orthop., Par., 1947, 33: 3-6. 17 refs.

1035
Lacroix, P. LE MODE DE CROISSANCE DU PÉRIOSTE. Arch. biol., Par., 1948, 59: 379-390. 5 refs. Abstracted in: Excerpta med., Sect. 1, 1950, 4: No. 1565; Biol. Abstr., Balt., 1949, 23: No. 21335.

1036
Lacroix, P. ORIGINE, STRUCTURE ET VALEUR DE L'ENCOCHE D'OSSIFICATION DE RANVIER. Bull. histol. appl., Lyon, 1949, 26: 159-169. pl. 10 refs. Abstracted in: Excerpta med., Sect. 1, 1950, 4: No. 1932.

1037
Lacroix, P. L'OS ET LES MÉCANISMES DE SA FORMATION; ÉTUDE MORPHOLOGIQUE. J. physiol., Par., 1951, 43: 385-424. Approx. 150 refs.

1038
Lacroix, P. REMARQUES SUR LE MÉCANISME DE L'ALLONGEMENT DES OS. Arch. biol., Par., 1945, 56: 185-197. pl. 14 refs.

1039
Lacroix, P. LE ROLE DU CARTILAGE DE CONJUGAISON DANS L'ALLONGEMENT DES OS. Acta orthop. scand., 1949, 18: 373-376. 3 refs. French, English and German summaries. Abstracted in: Excerpta med., Sect. 9, 1950, 4: No. 1110. "Hellstadius's observations that growth occurs from the diaphyseal stump after amputation of the lower end of the ulna have been confirmed. They are accounted for by growth processes which have been described previously, and they do not effect our conception of the normal function of the epiphyseal cartilage, which is directly and solely responsible for the growth in length of the long bones."

1040
Lacroix, P. SUR L'EVOLUTION DE LA DIAPHYSE AU COURS DE LA CROISSANCE. C. rend. Soc. biol., 1944, 138: 1026-1027.

1041
Lacroix, P. SUR L'ORIGINE DE LA VIROLE OSSEUSE PÉRICHONDRALE. C. rend. Soc. biol., 1944, 138: 1027-1028. 1 ref.

1042
Langenskiöld, A. and Edgren, W. THE GROWTH MECHANISM OF THE EPIPHYSEAL CARTILAGE IN THE LIGHT OF EXPERIMENTAL OBSERVATIONS. Acta orthop. scand., 1949, 19: 19-24. Abstracted in: Excerpta med., Sect. 1, 1950, 4: No. 947. Experimental defects were produced by X-ray irradiation in the epiphyseal cartilages of growing rabbits. These, "first localized in the metaphysis moved from there into the diaphysis. The authors see in these experiments a confirmation of their explanation of epiphyseal growth. It is suggested that in certain layers of the growing normal epiphyseal cartilage a transverse migration of cells occurs, contributing to the longitudinal growth of the osteogenic layer of the diaphyseal periosteum." - Excerpta med.

1043
Langenskiöld, A. and Edgren, W. IMITATION OF CHONDRODYSPLASIA BY LOCALIZED ROENTGEN RAY INJURY - AN EXPERIMENTAL STUDY OF BONE GROWTH. Acta chir. scand., 1950, 99: 353-373. pl. 22 refs. This study confirms "Ollier's belief that the foci appearing in the disease carrying his name arise by the persistence of portions of the epiphyseal cartilage, which are only slowly replaced by bone."

GROWTH AND DEVELOPMENT (Continued)

1044
Lichtwitz, A., Parlier, R., Thiéry, G. and Delaville, M. HISTOPHYSIOLOGIE DE LA CROISSANCE. Sem. hôp., Par., 1951, 27: 265-268. 37 refs. Translation in: Prensa méd. argent., 1951, 38: 1475-1479.

1045
Liosner, L. D. A CONTRIBUTION TO THE MORPHOGENETIC RÔLE OF THE SKELETON IN REGENERATION. III. Biull. eksp. biol. med., 1940, 9: 7-9.

1046
Liosner, L. D. ON THE MORPHOGENETIC RÔLE OF THE SKELETON IN REGENERATION. IV. Biull. eksp. biol. med., 1940, 9: 215-218.

1047
Lusted, L. B., Pickering, D. E., Fisher, D. and Smyth, F. S. GROWTH AND METABOLISM IN NORMAL AND THYROID-ABLATED INFANT RHESUS MONKEYS (MACACA MULATTA). V. RONTGENOGRAPHIC FEATURES OF SKELETAL DEVELOPMENT IN NORMAL AND THYROID-ABLATED INFANT RHESUS MONKEYS (MACACA MULATTA). Am. J. Dis. Child., 1953, 86: 426-435. 10 refs. Abstracted in: Chem. Abstr., 1954, 48: 2208^{i}.

1048
MacGowan, T. J. B. A. OSSIFICATION OF VERTEBRAL BODY. Lancet, Lond., 1939, 1: 258-259. 10 refs.

1049
Maj, G. OSSERVAZIONI SULL'ACCRESCIMENTO DELLA MANDIBOLA. Boll. Soc. ital. biol. sper., 1950, 26: 1110-1112. 2 refs. Abstracted in: Excerpta med., Sect. 1, 1953, 7: No. 2062.

1050
Massler, M. POSTNATAL GROWTH PATTERN OF THE CRANIUM AS MEASURED BY VITAL INJECTIONS OF ALIZARINE RED S. J. Dent. Res., 1944, 23: 193. An abstract.

1051
Miyashita, K. [DIE HISTOLOGISCHE UNTERSUCHUNG UEBER DEN WACHSTUM DER RIPPENKNOCHENKNORPEL-GRENZE UND DER EPIPHYSENFUGENKNORPEL DER EINIGEN WICHTIGEN EXTREMITAETENRÖHRENKNOCHEN DES NORMALE MEERSCHWEINSCHENS] Sei i kai M. J., 1935, 54: No. 2, 149-178. 3 pl. 17 refs. German summary, p. 1-4.

1052
Modell, W. and Noback, C. V. HISTOGENESIS OF BONE IN THE GROWING ANTLER OF THE CERVIDAE. Am. J. Anat., 1931, 49: 65-95. 4 pl. 14 refs. Abstracted in: Biol. Abstr., Balt., 1933, 7: No. 11935.

1053
Müller, W. ÜBER DIE HEMMUNG DER EPIPHYSENVERKNÖCHERUNG UNTER DEM EINFLUSS ABNORMER BELASTUNG. Arch. klin. Chir., 1930, 162: 484-488. 3 pl. Abstracted in: Biol. Abstr., Balt., 1932, 6: No. 8315.

1054
Murray, P. D. F. BONES: A STUDY OF THE DEVELOPMENT AND STRUCTURE OF THE VERTEBRATE SKELETON. 203p. Cambridge, University Press, 1936. References: p. 182-190. Reviewed in: Biol. Abstr., Balt., 1937, 11: No. 9655; Nutrit. Abstr., Aberdeen, 1936-37, 6: No. 6004.

1055
Noback, C. R. THE DEVELOPMENTAL ANATOMY OF THE HUMAN OSSEOUS SKELETON DURING THE EMBRYONIC, FETAL AND CIRCUMNATAL PERIODS. Anat. Rec., 1944, 88: 91-125. 4 pl. 53 refs. Abstracted in: Biol. Abstr., Balt., 1944, 18: No. 10756.

1056
Noback, C. R. SOME GROSS STRUCTURAL AND QUANTITATIVE ASPECTS OF THE DEVELOPMENTAL ANATOMY OF THE HUMAN EMBRYONIC FETAL AND CIRCUMNATAL SKELETON. Anat. Rec., 1943, 87: 29-51. 2 pl. 44 refs. Abstracted in: Biol. Abstr., Balt., 1944, 18: No. 1057.

1057
Noback, C. V. and Modell, W. DIRECT BONE FORMATION IN THE ANTLER TINES OF TWO OF THE AMERICAN CERVIDAE, VIRGINIA DEER (ODOCOILEUS VIRGINIANUS) AND WAPITI (CERVUS CANADENSIS) WITH AN INTRODUCTION ON THE GROSS STRUCTURE OF ANTLERS. Zoologica, N. Y., 1930, 11: 19-60. 20 refs. "Fibroblasts from the undifferentiated connective tissue cap lay down the ossifiable fibrillar framework while the osteoblasts from the periphery seem to complete the process of ossification. The presence of fibrils in the matrix surrounding the fibroblasts and absence of cartilage during the entire process of growth leads us to conclude that the antler is a form of membranous bone."

1058
Nové-Josserand. SUR LE RÔLE DES CARTILAGES DE CONJUGAISON DANS LA CROISSANCE DES OS. Lyon chir., 1936, 33: 684-688. Descriptions of X-rays of clinical subjects are used to support the thesis that the epiphyseal cartilage plays no role in growth of long bones.

1059
Okada, M. and Mimura, T. ZUR PHYSIOLOGIE UND PHARMAKOLOGIE DER HARTGEWEBE. IV. MITTEILUNG: TAGES-RHYTHMUS IN DER KNOCHENLAMELLENBILDUNG. Jap. J. M. Sc., Pharm., 1940, 13: Proc. 95-97.

1060
Park, E. A. SOME OBSERVATIONS ON BONE GROWTH. Washington Univ. M. Alumni Q., 1950, 13: 112-121.

1061
Payton, C. G. THE GROWTH OF THE PELVIS IN THE MADDER-FED PIG. J. Anat., Lond., 1935, 69: 326-343. 5 refs. Abstracted in: Biol. Abstr., Balt., 1935, 9: No. 19840,

1062
Peacock, A. OBSERVATIONS ON THE PRE-NATAL DEVELOPMENT OF THE INTERVERTEBRAL DISC IN MAN. J. Anat., Lond., 1951, 85: 260-274. 4 pl. 47 refs. Abstracted in: Excerpta med., Sect. 1, 1952, 6: No. 91; Biol. Abstr., Balt., 1951, 25: No. 36906.

1063
Poletti, H. SOBRE LA DISPOSICIÓN DEL RETÍCULO EN LA OSIFICACIÓN ENCONDRAL. Arch. Soc. biol., Montevideo, 1948-1949, 15: 25-29. 13 refs. Abstracted in: Excerpta med., Sect. 1, 1950, 4: No. 1595. In sections of the long bones of the human fetus studies were made of the distribution of silver-impregnated reticular fibers in endochondral ossification.

1064
Policard, A. À PROPOS DES MÉCANISMES DE LA CROISSANCE OSSEUSE. Presse méd., 1930, 38: 345-348. A description of the processes of bone growth from fetal life through late childhood directed to the clinician and the surgeon rather than the histologist.

1065
Policard, A. L'APPAREIL DE CROISSANCE DES OS LONGS; SES MÉCHANISMES À L'ÉTAT NORMAL ET PATHOLOGIQUE. 216p. Paris, Masson et Cie, 1941. Index Bibliographique: p. 205-210.

1066
Policard, A. QUELQUES REMARQUES A PROPOS DU FONCTIONNEMENT DU CARTILAGE DE CONJUGAISON DES OS LONGS. Lyon chir., 1936, 33: 617-625. A discussion of the role of the epiphyseal cartilage in the growth of the long bones, addressed to surgeons.

1067
Policard, A. SUR LES TYPES D'OSSIFICATION AU COURS DU DÉVELOPPEMENT DES OS LONGS CHEZ LES OISEAUX. C. rend. Soc. biol., 1941, 135: 963-965. In young chickens radiological and histological studies were made of the developing leg bones. Three types of ossification were studied: periosteal, endochondral and intramedullary.

1068
Pond, S. E. FLUCTUATIONS IN THE COMPOSITION AND STRUCTURE OF BONE AND THEIR BEARING ON ENDOCHONDRAL OSSIFICATION. Anat. Rec., 1933, 57: Suppl. 64. An abstract. Abstracted in: Chem. Abstr., 1935, 29: 2212^{6}; Nutrit. Abstr., Aberdeen, 1933-34, 3: No. 4336.

1069
Poulhès, J. and Gay, R. ÉTUDE ANATOMORADIOLOGIQUE DE L'OSSIFICATION NORMALE DE LA HANCHE DE LA NAISSANCE A 18 MOIS; D'APRÈS 500 OBSERVATIONS. C. rend. Ass. anat., (1950) 1951, 37: 409-417. Descriptions based on radiologic studies of the development and ossification of the infant hip, including the upper femur.

1070
Pritchard, J. J. PRINCIPLES OF GROWTH AND REPAIR IN MEMBRANE BONES. J. Anat., Lond., 1946, 80: 218.

1071
Reiter, A. DIE FRÜHENTWICKLUNG DER MENSCHLICHEN WIRBELSÄULE. III. MITTEILUNG: DIE ENTWICKLUNG DER LUMBAL-SACRAL-UND COCCYGEALWIRBELSÄULE. Zschr. Anat. Entw., 1944, 113: 204-227. 30 refs.

1072
Robb, R. and Clarke, J. GROWTH OF BONE SHAFTS IN THE HUMAN FETUS. Proc. Soc. Exp. Biol., N. Y., 1934, 31: 634-636. 5 refs. Abstracted in: Biol. Abstr., Balt., 1935, 9: No. 6001.

1073
Roche, A., Roche, J. and Marcelet, Y. RECHERCHES SUR L'OSSIFICATION. IV. OSSIFICATION DES OS PLATS, ÉTAPES DU DÉVELOPPEMENT DU SQUELETTE ET BIOCHIMIE GÉNÉRALE DU SYSTÈME OSSEUX. Bull. Soc. chim. biol., Par., 1938, 20: 705-719. 4 refs. Abstracted in: Biol. Abstr., Balt., 1938, 12: No. 15437; Chem. Abstr., 1938, 32: 7549^{9}.

1074
Romer, A. S. CARTILAGE AN EMBRYONIC ADAPTATION. Am. Natur., 1942, 76: 394-404. 11 refs. The presence of cartilage as the embryonic basis of adult bone is explained by the functional need of an expansible material whose growth processes leave surface conditions undisturbed.

1075
Ruth, E. B. METAMORPHOSIS OF THE PUBIC SYMPHYSIS. II. THE GUINEA PIG. Anat. Rec., 1936, 67: 69-79. 2 pl. 6 refs.

1076
Ruth, E. B. METAMORPHOSIS OF THE PUBIC SYMPHYSIS. III. HISTOLOGICAL CHANGES IN THE SYMPHYSIS OF THE PREGNANT GUINEA PIG. Anat. Rec., 1937, 67: 409-421. pl. 13 refs. Abstracted in: Biol. Abstr., Balt., 1938, 12: No. 1919.

1077
Ruth, E. B. A STUDY OF THE DEVELOPMENT OF THE MAMMALIAN PELVIS. Anat. Rec., 1932, 53: 207-225. 2 pl. 42 refs.

1078
Scaglietti, O. A PROPOSITO DELLE STRIE DI OSSIFICAZIONE DEL COLLO FEMORALE. Chir. org. movim., 1935-1936, 20: 272; 380.

1079
Schultz, A. H. PROPORTIONS, VARIABILITY AND ASYMMETRIES OF THE LONG BONES OF THE LIMBS AND THE CLAVICLES IN MAN AND APES. Human Biol., 1937, 9: 281-328. 29 refs.

1080
*Selye, H. ON THE MECHANISM CONTROLLING THE GROWTH IN LENGTH OF THE LONG BONES. J. Anat., Lond., 1934, 68: 289-292. Abstracted in: Biol. Abstr., Balt., 1935, 9: No. 3752.

1081
Sensening, E. C. THE EARLY DEVELOPMENT OF THE HUMAN VERTEBRAL COLUMN. Contr. Embryol. Carnegie Inst., 1949, 33: No. 214, 21-42. 5 pl. 46 refs. Abstracted in: Excerpta med., Sect. 1, 1951, 5: No. 864.

1082
Silfverskiöld, N. ÜBER LÄNGENWACHSTUM DER KNOCHEN UND TRANSPLANTATION VON EPIPHYSENSCHEIBEN. Acta chir. scand., 1934, 75: 77-104. 9 pl. 39 refs.

1083
Stettner, E. OSSIFICATIONSSTUDIEN AM HANDSKELET. I. DIE PHYSIOLOGISCHE WELLENBEWEGUNG DER DIFFERENZIERUNG. DIE BEZIEHUNG WUCHSFORM: DIFFERENZIERUNG. DIE PROGNOSTIK DER KÖRPERGRÖSSE. DAS METAKARPALE I. Zschr. Kinderh., 1931, 51: 435-458. 14 refs.

1084
Stettner, E. OSSIFICATIONSSTUDIEN AM HANDSKELET. II. ÜBER PSEUDOEPIPHYSEN DES HANDSKELET. Zschr. Kinderh., 1931, 51: 459-472. 12 refs.

1085
Streeter, G. L. DEVELOPMENTAL HORIZONS IN HUMAN EMBRYOS (FOURTH ISSUE). A REVIEW OF THE HISTOGENESIS OF CARTILAGE AND BONE. Contr. Embryol. Carnegie Inst., 1949, 33: 149-168. 4 pl. Abstracted in: Excerpta med., Sect. 1, 1950, 4: No. 367; Biol. Abstr., Balt., 1949, 23: No. 11133. The humerus was studied through all stages of chondrification and ossification for a more complete history of the consecutive factors in the development of the human skeleton system.

1086
*Studitskii, A. N. [EXPERIMENTAL INVESTIGATIONS IN HISTOGENESIS OF BONE TISSUE] Arb. Inst. exp. Morphogen., Moskva, 1934, 1: 37-53. German summary.

1087
Studitskii, A. N. EXPERIMENTALANALYSE DER DIFFERENZIERUNGSFAKTOREN PRIMÄRER SKELETE. Zschr. Zellforsch., 1936, 24: 269-302. 56 refs.

1088
Studitskii, A. N. MEKHANIZM OBRAZOVANIIA REGNLIATSIONNYKH STRUKTUR V EMBRIONAL'NOM SKELETE. [THE MECHANISM OF THE FORMATION OF REGULATING STRUCTURES IN THE EMBRYONIC SKELETON] C. rend. Acad. sc. URSS, 1934, 3: 634-640. 5 refs. In Russian and English. Abstracted in: Biol. Abstr., Balt., 1936, 10: No. 19676.

GROWTH AND DEVELOPMENT (Continued)

1089
Studitskii, A. N. VZAIMODEISTIIA TKANEI V FORMOOBRAZOVATEL'NYKH PROTSESSAKH. [INTERACTION OF TISSUES IN FORMATIVE PROCESSES] Usp. sovrem. biol., 1948, 25: 429-450. 54 refs. A report of author's experiments relating to development of the independent bone. Processes observed in the histogenesis of chick tubular bones were: 1) Condensation of mesenchymal cells in the area of bone formation. 2) Origin and growth of the cartilage later changing into bone. 3) Formation of the periosteal bone. 4) Penetration of blood vessels into cartilage, the dissolving of basic tissue and formation of the primary bone-marrow cavity.

1090
Theiler, K. ZUR OSSIFIKATION DER WIRBELKÖRPER. Schweiz. med. Wschr., 1950, 80: 1240. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 10889.

1091
Todd, T. W. THE ROENTGENOGRAPHIC APPRAISEMENT OF SKELETAL DIFFERENTIATION. Child Develop., Balt., 1930, 1: 298-310. 7 refs.

1092
Troitzky, W. ZUR FRAGE DER FORMBILDUNG DES SCHÄDELDACHES. (EXPERIMENTELLE UNTERSUCHUNG DER SCHÄDELDACHNÄHTE UND DER DAMIT VERBUNDENEN ERSCHEINUNGEN.) Zschr. Morph. Anthrop., 1932, 30: 504-534. 5 pl. 47 refs. Abstracted in: Biol. Abstr., Balt., 1935, 9: No. 19847.

1093
Vigano, A. A PROPOSITO DELLE STRIE DI OSSIFICAZIONE DEL COLLO FEMORALE. Chir. org. movim., 1935-1936, 21: 379.

1094
Walmsley, R. GROWTH OF BONE. Brit. J. Nutrit., 1952, 6: 410-415. pl. 25 refs. Abstracted in: Excerpta med., Sect. 2, 1953, 6: No. 5944. A review devoted chiefly to growth of length and girth of a long bone.

1095
Warwick, W. T. and Wiles, P. THE GROWTH OF PERIOSTEUM IN LONG BONES. Brit. J. Surg., 1934, 22: 169-174. 1 ref. Abstracted in: Biol. Abstr., Balt., 1937, 11: No. 3569.

1096
Wilson, C. L. EXPERIMENTAL INCREASE IN LEG LENGTH; A PRELIMINARY REPORT. Surg. Forum, 1951, p. 438-443. An increased rate of growth was obtained by setting up an electrolytic reaction near a growing epiphyseal line in puppies.

1097
Wislocki, G. B. STUDIES ON THE GROWTH OF DEER ANTLERS. I. ON THE STRUCTURE AND HISTOGENESIS OF THE ANTLERS OF THE VIRGINIA DEER (ODOCOILEUS VIRGINIANUS BOREALIS). Am. J. Anat., 1942, 71: 371-410. 5 pl. 31 refs. Abstracted in: Biol. Abstr., Balt., 1943, 17: No. 9025. "A description is presented in chronological order of the histogenesis and morphology of the antlers, in reference to their seasonal renewal, growth, and decline."

1098
Yasvoin, G. K SRAVNITEL'NOI GISTOLOGII KROVI I SOEDINITEL'NOI TKANI. XII. O VOZNIKNOVENII OSNOVNOGO VESHCHESTVA KOSTI U MLEKOPITAIUSHCHIKH. [COMPARATIVE HISTOLOGY OF THE BLOOD AND CONNECTIVE TISSUE. XII. ON THE ORIGIN OF THE BASIC BONE SUBSTANCE IN MAMMALS] Arkh. biol. nauk, 1935, 37: 553-576. 41 refs.

See:

57	118	183	212	230
269	270	456	462	488
500	501	502	505	515
525	527	538	542	544
545	712	907	915	916
918	919	1173	1350	1357
1358	1409	1420	1486	1548
1896	1897	1898	1933	1946
1947	1955	1956	1958	2039
2044	2332	2570	2571	2592
2642	2662	2663	2668	2669
2671	2677	2678	2721	2798
2813	2967	2969	2970	

GROWTH AND DEVELOPMENT - VARIATIONS WITH AGE, SEX, SPECIES, PARTS AND KINDS OF BONE

see also CHEMISTRY - VARIATIONS WITH AGE AND KINDS OF BONE; PHYSICAL PROPERTIES - VARIATIONS, AGE AND REGIONAL; STRUCTURE - VARIATIONS WITH AGE

1099
Amprino, R. and Bairati, A. MODIFICAZIONI DELLA STRUTTURA DELLA CARTILAGINE E DELL'OSSO DELL'UOMO NELLE VARIE ETÀ. Gior. Accad. med. Torino, 1935, 98: 79-83. A discussion of the growth and development of human cartilage (hyaline, elastic, fibrous) and bone and of the effects of functional stresses upon structure at various ages.

1100
Berstein, S. A. ÜBER DEN NORMALEN HISTOLOGISCHEN AUFBAU DES SCHÄDELDACHES. Zschr. Anat. Entw., 1933, 101: 652-678. 12 refs. Abstracted in: Biol. Abstr., Balt., 1935, 9: No. 1692.

1101
Bhaskar, S. N., Weinmann, J. P., Schour, I. and Greep, R. O. THE GROWTH PATTERN OF THE TIBIA IN NORMAL AND IA RATS. Am. J. Anat., 1950, 86: 439-477. 5 pl. 14 refs. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 1827; Excerpta med., Sect. 1, 1951, 5: No. 223.

1102
Bick, E. M. THE OSTEOHISTOLOGY OF THE NORMAL HUMAN VERTEBRA: ITS RELATION TO SCOLIOSIS AND CERTAIN LESIONS INCIDENT TO GROWTH AND SENESCENCE. J. Mount Sinai Hosp., N. York, 1952, 19: 490-527. 30 refs. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 9658.

1103
Coventry, M. B., Ghormley, R. K. and Kernohan, J. W. THE INTERVERTEBRAL DISC: ITS MICROSCOPIC ANATOMY AND PATHOLOGY. PART II. CHANGES IN THE INTERVERTEBRAL DISC CONCOMITANT WITH AGE. J. Bone Surg., 1945, 27: 233-247. 10 refs.

1104
Davenport, C. B. POSTNATAL DEVELOPMENT OF THE HUMAN EXTREMITIES. Proc. Am. Philos. Soc., 1944, 88: 375-455. 2 pl. Approx. 135 refs. Abstracted in: Biol. Abstr., Balt., 1945, 19: No. 6060. Contents: Preface. - Growth in length of limbs and segments. - Change with age of percentage ratios and indices of linear dimensions. - Change with age of percentage ratios of girth. - Development of hand. - Development of the foot. - Interrelation of certain dimensions. - Discussion. - Summary of conclusions. - Bibliography. The study was based on observations of several hundred children between the ages of birth and maturity.

GROWTH AND DEVELOPMENT - VARIATIONS WITH AGE, SEX, SPECIES, PARTS AND KINDS OF BONE (Continued)

1105
Evans, F. G., Hayes, J. F. and Powers, J. E. "STRESSCOAT" DEFORMATION STUDIES OF THE HUMAN FEMUR UNDER TRANSVERSE LOADING. Anat. Rec., 1953, 116: 171-187. 2 pl. 5 refs. Abstracted in: Biol. Abstr., Balt., 1954, 28: No. 932; Excerpta med., Sect. 1, 1954, 8: No. 681.

1106
Fazzari, I. OSSERVAZIONI SULLA STRUTTURA RADIOLOGICA DELL'OSSO DELL'ANCA NELL'UOMO. Arch. ital. anat., 1941, 45: 413-439. 7 refs. Abstracted in: Biol. Abstr., Balt., 1947, 21: No. 17419. The structure of the human hip bone is studied radiologically in relation to its static and dynamic functions and in relation to age and sex.

1107
Franceschini, M. ACCRESCIMENTO CORRELATIVO DELLE CARTILAGINI SERIATE E DELLE EPIFISI NELLE OSSA LUNGHE DEGLI ARTI DELL'UOMO. Boll. Soc. ital. biol. sper., 1948, 24: 215-217. Abstracted in: Biol. Abstr., Balt., 1949, 23: No. 18854. In individuals of various ages a study has been made of the correlation between the growth of the seriate cartilages and epiphyses of the long bones and of the relation of this growth to total body growth.

1108
Hirsch, C., Paulson, S., Sylvén, B. and Snellman, O. BIOPHYSICAL AND PHYSIOLOGICAL INVESTIGATIONS ON CARTILAGE AND OTHER MESENCHYMAL TISSUES. VI. CHARACTERISTICS OF HUMAN NUCLEI PULPOSI DURING AGING. Acta orthop. scand., 1953, 22: 175-183. 16 refs.

1109
Martin, E. DAS JUGENDLICHE MENSCHLICHE BECKEN. Anat. Anz., 1949, 97: 196-208. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 24029.

1110
Payton, C. G. THE GROWTH IN LENGTH OF THE LONG BONES IN THE MADDER-FED PIG. J. Anat,, Lond., 1932, 66: 414-425. 16 refs. Abstracted in: Biol. Abstr., Balt., 1935, 9: No. 1698.

1111
Payton, C. G. THE GROWTH OF THE EPIPHYSES OF THE LONG BONES IN THE MADDER-FED PIG. J. Anat., Lond., 1933, 67: 371-381. 2 pl. 21 refs. Abstracted in: Biol. Abstr., Balt., 1934, 8: No. 16556; Nutrit. Abstr., Aberdeen, 1933-34, 3: No. 2188.

1112
Peacock, A. OBSERVATIONS ON THE POSTNATAL STRUCTURE OF THE INTERVERTEBRAL DISC IN MAN. J. Anat., Lond., 1952, 86: 162-179. 3 pl. 52 refs. "Descriptions are given of the tissue changes taking place in the structural components of the human intervertebral disc, from birth to 80 years of age." Specimens were examined macroscopically and microscopically.

1113
Roche, A. and Garcia, I. CONSTANCE DU RAPPORT ENTRE LA TAILLE DU SQUELETTE ET LA MASSE ACTIVE CHEZ LE RAT. C. rend. Soc. biol., 1935, 120: 160-162. 3 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1935-36, 5: No. 3085.

1114
Roche, A., Roche, J. and Marcelet, Y. LE SYSTÈME OSSEUX UNITÉ PHYSIOLOGIQUE. ÉTAPES DE LA CROISSANCE ET DEGRÉ DE CALCIFICATION DES OS LONGS OU PLATS ET DES DENTS. C. rend. Soc. biol., 1938, 128: 910-912. 3 refs.

1115
Ruth, E. B. METAMORPHIS OF THE PUBIC SYMPHYSIS. I. THE WHITE RAT (MUS NORVEGICUS ALBINUS). Anat. Rec., 1935, 64: 1-6. pl. 8 refs. "A description of the postnatal development of the symphysis to the difinitive condition in the adult is followed by a description of the old age changes."

1116
Silberberg, M and Silberberg, R. AGE CHANGES OF BONES AND JOINTS IN VARIOUS STRAINS OF MICE. Am. J. Anat., 1941, 68: 62-95. 3 pl. 22 refs. Abstracted in: Biol. Abstr., Balt., 1941, 15: No. 10693.

1117
Silberberg, M. and Silberberg, R. THE INFLUENCE OF SEX AND BREEDING ON SKELETAL AGEING OF MICE. Anat. Rec., 1945, 91: 89-105. 2 pl. 9 refs. Abstracted in: Biol. Abstr., Balt., 1945, 19: No. 10531.

1118
Sissons, H. A. EXPERIMENTAL DETERMINATION OF RATE OF LONGITUDINAL BONE GROWTH. J. Anat., Lond., 1953, 87: 228-236. pl. 19 refs. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 29906. A radiological study of the epiphyseal cartilage plate of the lower end of the femur of rats and rabbits was made to determine differences in the rate of growth in the two species. The results of this study were "used in interpreting the microscopic structure of the growing region of the bone in each species and in determining the duration of each of the cellular processes concerned in the formation and maturation of bone trabeculae in this situation. The relative duration of the various cellular processes..." was found to vary "from species to species, and this factor, in addition to variation in absolute growth rates" was found to be "responsible for differences in the microscopic structure of the growing region in the two species."

1119
Tomlin, D. H., Henry, K. M. and Kon, S. K. AUTORADIOGRAPHIC STUDY OF GROWTH AND CALCIUM METABOLISM IN THE LONG BONES OF THE RAT. Brit. J. Nutrit., 1953, 7: 235-252. 4 pl. 17 refs. Abstracted in: Chem. Abstr., 1953, 47: 11421[f]; Biol. Abstr., Balt., 1954, 28: No. 13591.

See:

125 465 688 1135 1138
1140 1142 1216 1932 1957
2047 2116

HORMONAL INFLUENCE

1120
Albright, F. THE EFFECT OF HORMONES ON OSTEOGENESIS IN MAN. Recent Progr. Hormone Res., 1947, 1: 293-353. 56 refs. Abstracted in: Chem. Abstr., 1948, 42: 1644[f].

1121
Albright, F. OSTEOPOROSIS. Ann. Int. M., 1947, 27: 861-882. 15 refs. The author attributes the osteoporosis of old age partly to loss of gonodal hormones and diminution of the adrenal cortical "N" hormone. He discusses the normal internal dynamics of the skeleton; the factors which influence osteoblastic activity: (a) steroidal hormones (b) mechanical stresses and strains (c) nitrogenous building blocks; and the role an imbalance or a lack of any of these three factors plays in the production of osteoporosis.

HORMONAL INFLUENCE (Continued)

1122
Amprino, R. LA STRUTTURA DELLE OSSA DELL'UOMO IN RELAZIONE A TURBE DELL'ACCRESCIMENTO. RICERCHE SUGLI SCHELETRI DI UN GIGANTE E DI UN NANO. Arch. ital. anat., 1943, 49: 161-193. 10 refs. Abstracted in: Biol. Abstr., Balt., 1948, 22: No. 19899. Histological comparision of the compact bone of the long bones of a young giant and young dwarf demonstrated a deviation from the normal rate of ossification processes, more rapid in the giant, slower in the dwarf. The differences were believed due to hormonal factors. Marked analogy of structure was also noted.

1123
Bell, G. H. and Cuthbertson, D. P. THE EFFECT OF VARIOUS HORMONES ON THE CHEMICAL AND PHYSICAL PROPERTIES OF BONE. J. Endocr., Oxf., 1943, 3: 302-309. 9 refs. Abstracted in: Biol. Abstr., Balt., 1944, 18: No. 4395; Chem. Abstr., 1944, 38: 2094[9]; Nutrit. Abstr., Aberdeen, 1944-45, 14: No. 359. "...the most striking point about the present experiments... is the constancy of the physical and chemical characteristics of bone - a feature which is presumably of value from the point of view of the survival of the organism. It may be... that we shall have to give up the idea that there are bones of varying quality..."

1124
*Campbell, I. L. and Turner, C. W. THE RELATION OF THE ENDOCRINE SYSTEM TO THE REGULATION OF CALCIUM METABOLISM. Montana Agr. Exp. Sta. Res. Bull., 1942, No. 352. 134p. Abstracted in: Nutrit. Abstr., Aberdeen, 1945-46, 15: No. 3339.

1125
Coryn, G. LES ENDOCRINES ET LE SQUELETTE. EXPERIMENTATION ET CLINIQUE. Ann. Soc. sc. méd. natur. Bruxelles, 1937, Bull., 33-37.

1126
Coryn, G. ÉTUDE DE L'INFLUENCE DES GLANDES ENDOCRINES SUR LE SQUELETTE. Arch. internat. méd. exp., Liege, 1936, 11: 135-403. Bibliogr.: p. 381-403. A digest in: J. radiol. electr., 1936, 20: 123-128.

1127
Coryn, G. INTRODUCTION À L'ÉTUDE DES AFFECTIONS ENDOCRINIENNES DU SQUELETTE. Presse méd., 1937, 45: 611-613. Abstracted in: Chem. Abstr., 1937, 31: 7995[9].

1128
Coryn, G. RECHERCHE EXPERIMENTALE SUR L'INFLUENCE DES GLANDES ENDOCRINES SUR L'HISTOLOGIE DU CARTILAGE DE CONJUGAISON. Ann. anat. path., Par., 1939, 16: 27-42. 12 refs.

1129
Cotellessa, G. and De Maestri, A. IL CONTRIBUTO DIAFISARIO NEL PROCESSO DI ACCRESCIMENTO SCHELETRICO DOPO SOMMINISTRAZIONE DI ALCUNI PREPARATI ORMONICI. Minerva pediat., Tor., 1953, 5: 968-971. 10 refs.

1130
Eaton, J. C. THE INFLUENCE OF THE ENDOCRINES ON THE SKELETON. Glasgow M. J., 1946, 27: 93-108. 45 refs. Abstracted in: Biol. Abstr., Balt., 1948, 22: No. 16125.

1131
Follis, R. H., Jr. THE INFLUENCE OF ESSENTIAL NUTRIENTS AND HORMONES ON CARTILAGE AND BONE. Tr. Conf. Metab. Interrelat., 1950, 2.meet., 221-257. 18 refs. Report and discussion of studies.

1132
Fontaine, R., Mandel, P. and Wiest, E. ÉTUDE ANATOMIQUE, CLINIQUE, HISTOLOGIQUE ET BIOCHIMIQUE DE L'ACTION DE DIFFÉRENTES HORMONES (THYROXINE, DÉSOXYCORTICOSTÉRONE ET CORTISONE) SUR L'EVOLUTION DES FRACTURES EXPÉRIMENTALES CHEZ LE CHIEN. Mém. Acad. chir., Par., 1952, 78: 351-359. 5 refs. Abstracted in: Excerpta med., Sect. 9, 1953, 7: No. 1484.

1133
Gaillard, P. J. HORMONES REGULATING GROWTH AND DIFFERENTIATION IN EMBRYONIC EXPLANTS. 82p. Par., Hermann, 1942. (Actual. sc. indust. No. 923). Summary of research carried out by the author and his colleagues since 1929, a part of which concerns bone.

1134
Langenskiöld, F. OM VITAMINERNAS OCH HORMONERNAS INFLYTANDE PA SKELETTET. Nord. med., 1939, 1: 733-738. 16 refs. German summary.

1135
Loeb, L. HORMONES AND THE PROCESS OF AGEING. Harvey Lect., Balt., 1940-1941, 36: 228-250. 34 refs. A survey.

1136
Parker, S. G. REGULATION OF LONGITUDINAL BONE GROWTH. Arch. Surg., 1949, 59: 1100-1121. 122 refs. The endocrinological aspects of bone growth are reviewed.

1137
Schnitman, S. GLANDULAS ENDOCRINAS Y HUESO. Rev. odont., B. Air., 1950, 38: 114-133. 6 refs.

1138
*Silberberg, M. and Silberberg, R. THE EFFECT OF ENDOCRINES ON ARTICULAR TISSUE AND THEIR RELATION TO AGEING PROCESSES. Ann. Rheumat. Dis., Lond., 1949, 8: 307. Abstracted in: Excerpta med., Sect. 3, 1951, 5: No. 605.

1139
Silberberg, M. and Silberberg, R. EFFECTS OF HORMONES ON THE SKELETON OF MICE, GUINEA PIGS AND RATS. Endocrinology, 1941, 29: 475-482. 37 refs. Abstracted in: Chem. Abstr., 1941, 35: 7505[5]. The effects on cartilage and bone of growing animals, produced by anterior pituitary preparations, thyroid, hormone, potassium iodide, parathyroid extracts and sex hormones are compared.

1140
Silberberg, M. and Silberberg, R. INFLUENCE OF THE ENDOCRINE GLANDS ON GROWTH AND AGING OF THE SKELETON. Arch. Path., Chic., 1943, 36: 512-534. 208 refs. Abstracted in: Biol. Abstr., Balt., 1944, 18: No. 10280.

1141
Silberberg, M. and Silberberg, R. THE RESPONSE OF CARTILAGE AND BONE OF THE NEWBORN GUINEA PIG TO STIMULATION BY VARIOUS HORMONES (ANTERIOR HYPOPHYSEAL EXTRACT, ESTROGEN, THYROXINE). Anat. Rec., 1940, 78: 549-558. 7 refs. "In the newborn guinea pig the cartilage has the tendency to respond to various hormonal stimuli with more proliferative and less retrogressive changes than that of older animals. This is further evidence in favor of the opinion that the age of the animal on which the hormone acts plays an important role in helping to determine the mode of reaction of the cartilage to... various hormones."

1142
Silberberg, M. and Silberberg, R. DIE ROLLE DER HORMONE IM WACHSTUM UND ALTERN DES SKELETTS UND IHRE BEDEUTUNG FÜR DIE PATHOGENESE DER ARTHRITIS DEFORMANS. Schweiz. med. Wschr., 1949, 79: 127-132. 39 refs. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 7754.

1143
Silberberg, M. and Silberberg, R. SOME ASPECTS OF THE ROLE OF HORMONAL AND NUTRITIONAL FACTORS IN SKELETAL GROWTH AND DEVELOPMENT. Growth, Phila., 1949, 13: 359-368. 22 refs. Abstracted in: Biol. Abstr., Balt., 1950, 24: No. 14331; Nutrit. Abstr., Aberdeen, 1950-51, 20: No. 748.

1144
Simpson, M. E., Asling, C. W. and Evans, H. M. SOME ENDOCRINE INFLUENCES ON SKELETAL GROWTH AND DIFFERENTIATION. Yale J. Biol., 1950, 23: 1-27. 6 pl. 73 refs. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 10411; Excerpta med., Sect. 3, 1952, 6: No. 973.

1145
Thompson, W. O., Heckel, N. J. and Morris, R. M. HORMONAL FACTORS INFLUENCING SKELETAL GROWTH. J. Clin. Invest.,1941, 20: 464. An abstract.

1146
Williams, H. L. and Watson, E. M. INFLUENCE OF HORMONES UPON PHOSPHATASE CONTENT OF RAT FEMURS. I. EFFECTS OF ADRENAL CORTICAL SUBSTANCES AND PARATHYROID EXTRACT. Endocrinology, 1941, 29: 250-257. 25 refs. Abstracted in: Chem. Abstr., 1941, 35: 7502^{5}.

1147
Williams, H. L. and Watson, E. M. INFLUENCE OF HORMONES UPON PHOSPHATASE CONTENT OF RAT FEMURS. II. EFFECTS OF SEX HORMONES, THYROXIN AND THYMUS EXTRACT. Endocrinology, 1941, 29: 258-261. 20 refs. Abstracted in: Chem. Abstr., 1941, 35: 7502^{8}.

1148
Wolterink, L. F. ISOTOPES IN HORMONAL AND NUTRITIONAL STUDIES IN ANIMALS. IN: CONFERENCE ON THE USE OF ISOTOPES IN PLANT AND ANIMAL RESEARCH. Manhatan, Kan., June 1952. U. S. Atomic Energy Commission, Washington, D. C., 1953, p. 122-154. (TID-5098) Approx. 65 refs. Abstracted in: Nuclear Sc. Abstr., 1954, 8: No. 80.

See:

146 967 2178

HORMONAL INFLUENCE - ADRENAL CORTEX

1149
Blunt, J. W., Jr., Plotz, C. M., Lattes, R. Howes, E. L., Meyer, K. and Ragan, C. EFFECT OF CORTISONE ON EXPERIMENTAL FRACTURES IN THE RABBIT. Proc. Soc. Exp. Biol., N.Y., 1950, 73: 678-681. 7 refs. Abstracted in: Chem. Abstr., 1950, 44: 7435^{g}. In rabbits receiving cortisone, the gross healing of fracture and the absorption of the hematoma were greatly delayed.

1150
Campbell, R. M., Sharp, G., Boyne, A. W. and Cuthbertson, D. P. CORTISONE AND THE METABOLIC RESPONSE TO INJURY. Nature, Lond., 1953, 172: 158-160. 10 refs. Abstracted in: Chem. Abstr., 1953, 47: 11441^{g}.

1151
Euler, U. S. von. ÜBER DIE WIRKUNG KLEINER ADRENALINMENGEN AUF DEN SAUERSTOFFVERBRAUCH DES KÜNSTLICH DURCHSTRÖMTEN HUNDEBEINS. Arch. internat. pharm. dyn., Gand, 1932, 42: 259-277. Abstracted in: Chem. Abstr., 1933, 27: 1400.

1152
Fiandaca, S. SULL'INFLUENZA DEGLI ORMONI CORTICALI SUL RICAMBIO MINERALE. Riv. pat. sper., 1936, 16: 407-418. 11 refs. Abstracted in: Chem. Abstr., 1937, 31: 442^{4}. In experiments on rabbits the effects of the cortical hormones were studied in various organs including bone. It was concluded that the adrenal cortex exerted an important influence on body minerals, particularly on the calcium and phosphorus content.

1153
Follis, R. H., Jr. EFFECT OF CORTISONE ON GROWING BONES OF THE RAT. Proc. Soc. Exp. Biol., N. Y., 1951, 76: 722-724. 6 refs. Abstracted in: Chem. Abstr.,1951, 45: 6723d.

1154
Follis, R. H., Jr. EFFECT OF 17-HYDROXYCORTICOSTERONE-21-ACETATE ON GROWING BONES OF THE RAT. Bull. Johns Hopkins Hosp., 1952, 90: 337-339. pl. 2 refs. Abstracted in: Excerpta med., Sect. 3, 1952, 6: No. 2150; Brit. Abstr., Sect. AIII, 1953, p. 180. "Skeletal lesions similar to those produced by cortisone may be observed when 17-hydroxycorticosterone-21-acetate is administered to growing rats. The latter is more effective quantity for quantity than the former."

1155
Follis, R. H., Jr. NON-EFFECT OF CORTISONE ON GROWING BONES OF MICE, GUINEA PIGS AND RABBITS. Proc. Soc. Exp. Biol., N. Y., 1951, 78: 723-724. 4 refs.

1156
Fontaine, R., Mandel, P. and Wiest, E. ÜBER DIE WIRKUNG VERSCHIEDENER HORMONE (THYROXIN, DESOXYCORTICOSTERON UND CORTISON) AUF DEN VERLAUF EXPERIMENTELLER KNOCHENBRÜCHE BEIM HUNDE. Medizinische, 1952, p. 899-901. pl. 6 refs. Abstracted in: Chem. Abstr., 1952, 46: 9712^{g}. In dogs the effects of various hormones on fracture healing were studied.

1157
Herrick, E. H., Mead, E. R., Egerton, B. W. and Hughes, J. S. SOME EFFECTS OF CORTISONE ON VITAMIN C-DEFICIENT GUINEA PIGS. Endocrinology, 1952, 50: 259-263. 26 refs. Abstracted in: Chem. Abstr., 1953, 47: 3940^{1}. The addition of cortisone to a scorbutic diet prevented painful joints. Bone structure and testes remained almost normal but adrenal gland cells became atrophied.

1158
Ingalls, T. H. and Hayes, D. R. EPIPHYSEAL GROWTH: THE EFFECT OF REMOVAL OF THE ADRENAL AND PITUITARY GLANDS ON THE EPIPHYSES OF GROWING RATS. Endocrinology, 1941, 29: 720-724. 5 refs. Abstracted in: Chem. Abstr., 1942, 36: 534^{8}; Biol. Abstr., Balt., 1942, 16: No. 6648.

1159
Key, J. A., Odell, R. T. and Taylor, L. W. FAILURE OF CORTISONE TO DELAY OR TO PREVENT THE HEALING OF RACTURES IN RATS. J. Bone Surg., 1952, 34A: 665-675. Discussion: p. 675, 677. 9 refs. Cortisone did not delay the healing or alter the microscopic appearance of the process of repair of experimental fractures in animals.

1160
Kozdoba, A. Z. EXPERIMENTELLE UNTERSUCHUNGEN ÜBER DIE HEILUNG VON KNOCHENBRÜCHEN BEI NEBENNIERENHYPERFUNKTION. Arch. klin. Chir., 1932, 169: 96-106. 47 refs. Abstracted in: Biol. Abstr., Balt., 1933, 7: No. 14393; Nutrit. Abstr., Aberdeen, 1932-33, 2: No. 300.

HORMONAL INFLUENCE - ADRENAL CORTEX (Continued)

1161
Lattes, R., Blunt, J. W., Jr., Rose, H. M., Jessar, R. A., Vaillancourt, de G. and Ragan, C. LACK OF CORTISONE EFFECT IN THE EARLY STAGES OF INFLAMMATION AND REPAIR. Am. J. Path., 1953, 29: 1-19. 8 refs.

1162
Levie, L. H. and Uyldert, I. E. THE INFLUENCE OF ADRENALS ON BONE GROWTH. Acta brevia neerl., 1939, 9: 121-123. 2 pl. 4 refs. Abstracted in: Biol. Abstr., Balt., 1939, 13: No. 11063.

1163
Lucchese, G. L'INFLUENZA DELLE SURRENALI SULLA FORMAZIONE DEL CALLO OSSEO. RICERCHE SPERIMENTALI. Policlinico, 1934, 41: 579-592. 45 refs. Abstracted in: Biol. Abstr., Balt., 1936, 10: No. 3457.

1164
Maassen, A. P. ADRENALS AND BONE-GROWTH. Acta endocr., Kbh., 1952, 9: 135-140. 2 refs. Abstracted in: Biol. Abstr., Balt., 1952, 26: No. 27828; Chem. Abstr., 1954, 48: 247^{i}.

1165
Maassen, A. P. THE EFFECT OF DESOXYCORTICOSTERONE ACETATE (DOCA) ON BODY-GROWTH AND OSSIFICATION. Acta endocr., Kbh., 1952, 9: 291-296. 4 refs. Abstracted in: Biol. Abstr., Balt., 1952, 26: No. 27829; Chem. Abstr., 1954, 48: 256^{g}.

1166
Mandel, P., Fontaine, R., Ebel, A. and Vogeleisen, A. ETUDE DE LA CONSTITUTION DE L'OS CHEZ LE RAT EN CROISSANCE SOUMIS À L'ACTION DE LA CORTISONE. C. rend. Soc. biol., 1953, 147: 511-514. 4 refs. Abstracted in: Chem. Abstr., 1954, 48: 2239^{i}.

1167
Oka, H. [BEITRÄGE ZUM VERHALTEN DER ENDOKRINEN ORGANE BEI KNOCHENFRAKTUR. (I. MITTEILUNG). HISTOLOGISCHE VERÄNDERUNG DER NEBENNIERE IM VERLAUFE DER FRAKTURHEILUNG] Okayama igakkai zassi, 1939, 51: 34-49. 2 pl. 43 refs. German summary, p. 49.

1168
Prader, A. and Maassen, A. P. DIE WIRKUNG DER ANDROGENEN HORMONE AUF DAS SKELETT; KNOCHEN- UND ZAHNENTWICKLUNG, CALCIUM, PHOSPHOR UND PHOSPHATASEN IM SERUM BEIM KONGENITALEN ADRENOGENITALEN SYNDROM. Helvet. paediat. acta, 1953, 8: 136-151. 23 refs. In this study of the effects of congenital adrenocortical hyperplasia in 19 patients, aged 1 month to 37 years, marked changes were observed in bone development while dental development was normal. This was explained by the special position of teeth as endocrine end-organs. It was also concluded that phosphorus is an index of the production of pituitary growth hormone and that estrogen and androgen inhibit this production.

1169
Wolbach, S. B. and Maddock, C. L. CORTISONE AND MATRIX FORMATION IN EXPERIMENTAL SCORBUTUS AND REPAIR THEREFROM. WITH CONTRIBUTIONS TO THE PATHOLOGY OF EXPERIMENTAL SCORBUTUS. A.M.A. Arch. Path., 1952, 53: 54-69. pl. 21 refs. Abstracted in: Excerpta med., Sect. 2, 1952, 5: No. 6342. "Cortisone administration neither accelerates nor depresses the reparative processes in scurvy in the guinea pig. The resumption of formation of intercellular materials is not affected in either direction as far as can be observed by histologic criteria."

1170
Wyman, L. C. and Tum-Suden, C. THE EFFECT OF ADRENALECTOMY ON THE EPIPHYSEAL CARTILAGE OF THE RAT. Endocrinology, 1945, 36: 340-346. 15 refs. Abstracted in: Biol. Abstr., Balt., 1945, 19: No. 21510.

See:

605 713 740 971

HORMONAL INFLUENCE - PANCREAS ISLETS

1171
*Hernberg, C. A. THE BONE STRUCTURE IN ALLOXAN-INDUCED DIABETES MELLITUS IN RATS. Acta med. scand., 1952, 142: 274-283. Abstracted in: Excerpta med., Sect. 3, 1952, 6: No. 788.

1172
Ksendzovskii, M. E. OVLIIANII VNUTRENNEI SEKRETSII NA ZAZHIVLENIE KOSTNYKH PERELOMOV. [INFLUENCE OF INTERNAL SECRETION ON KNITTING OF FRACTURES] Nov. khir. arkh., 1930, 86: 149-156. Abstracted in: Tsentr. med. zh., 1931, 8: 481. Experimental study of effect of insulin, potassium and calcium on knitting of bone fractures in healthy rats. It was found: 1) That isotonic KCl and $CaCl_2$ solutions have no influence on osteogenesis. 2) Insulin injection has a favorable effect on fracture healing. 3) Insulin with isotonic $CaCl_2$ solution injection has a better effect than injection of pure insulin.

1173
Salter, J. and Best, C. H. INSULIN AS A GROWTH HORMONE. Brit. M. J., 1953, II: 353-356. 11 refs. Abstracted in: Fed. Proc. Balt., 1953, 12: No. 399; Chem. Abstr., 1953, 47: 11409^{b}. Hypophysectomized rats were fed a constantly available diet and injected daily with slow-acting protamine zinc insulin in small, gradually increasing doses. Results showed that the animals gained 38 g. in 15 days with an average increase in body protein of 2.6 g. per rat and an average increase in the width of the epiphyseal disk of the tibia of 65%. Results indicate that insulin may stimulate growth and that decreased liberation of insulin may be a factor in limiting growth in the hypophysectomized animal.

See:

748 832 1304

HORMONAL INFLUENCE - PARATHYROID

1174
Albright, F. and Reifenstein, E. C., Jr. THE PARATHYROID GLANDS AND METABOLIC BONE DISEASE; SELECTED STUDIES. 410p. Baltimore, Williams & Wilkins, 1948. Bibliography: p. 312-332.

1175
Barnicot, N. A. THE LOCAL ACTION OF THE PARATHYROID AND OTHER TISSUES ON BONE IN INTRACEREBRAL GRAFTS. J. Anat., Lond., 1948, 82: 233-248. 2 pl. 17 refs. Abstracted in: Biol. Abstr., Balt., 1949, 23: No. 10654. Using parathyroid intracerebral grafts in rats, it was found that bone was eroded only in close proximity to the parathyroid tissue, indicating that parathyroid hormone does effect bone directly.

1176
Barnicot, N. A. SOME DATA ON THE EFFECT OF PARATHORMONE ON THE GREY-LETHAL MOUSE. J. Anat., Lond., 1945, 79: 83-91. 2 pl. 16 refs. Abstracted in: Biol. Abstr., Balt., 1946, 20: No. 12404.

HORMONAL INFLUENCE - PARATHYROID (Continued)

1177
Bartels, E. D. ACTION OF THE PARATHYROID HORMONE; A SURVEY. Acta endocr., Kbh., 1954, 15: 71-81. 61 refs. The literature on the effect of the parathyroid hormone on the kidney and the bones is reviewed.

1178
Baumann, E. J. and Sprinson, D. B. HYPERPARATHYROIDISM PRODUCED BY DIET. Am. J. Physiol., 1939, 125: 741-746. Abstracted in: Biol. Abstr., Balt., 1939, 13: No. 7535.

1179
Becks, H., Kibrick, E. A. and Evans, H. M. THE BONE HISTOLOGY OF ADULT MALE RATS THYROPARATHYROIDECTOMIZED WHEN ONE MONTH OF AGE. J. Exp. Zool., 1942, 89: 297-302. 1 pl. 9 refs. Abstracted in: Biol. Abstr., Balt., 1942, 16: No. 14455.

1180
Bhaskar, S. N., Schour, I. and Greep, R. O. THE CORRECTIVE EFFECT OF PARATHYROID HORMONE ON GENETIC ANOMALIES IN THE DENTITION AND THE TIBIA OF THE IA RAT. J. Dent. Res., 1952, 31: 257-270. 16 refs. Abstracted in: Biol. Abstr., Balt., 1952, 26: No. 23545.

1181
Bülbring, E. ÜBER DIE BEZIEHUNGEN ZWISCHEN EPITHELKÖRPERCHEN, CALCIUMSTOFFWECHSEL UND KNOCHENWACHSTUM. Arch. exp. Path., Lpz., 1931, 162: 209-248. 60 refs. Abstracted in: Chem. Abstr., 1932, 26: 1018.

1182
Burns, C. M. and Henderson, N. THE MINERAL CONSTITUENTS OF BONE. III. THE EFFECT OF PROLONGED PARATHORMONE INJECTIONS ON THE COMPOSITION OF THE BONES OF PUPPIES WITH VARYING CALCIUM INTAKES. Biochem. J., Lond., 1946, 40: 501-507. 17 refs. Abstracted in: Chem. Abstr., 1947, 41: 187^{i}; Biol. Abstr., Balt., 1948, 22: No. 8482.

1183
Burrows, R. B. INFLUENCE OF PARATHYROID EXTRACTS ON GROWING BONE. J. Elisha Mitchell Sc. Soc., 1937, 53: 225-226. An abstract. Abstracted in: Chem. Abstr., 1938, 32: 26002.

1184
Burrows, R. B. VARIATIONS PRODUCED IN BONES OF GROWING RATS BY PARATHYROID EXTRACTS. Am. J. Anat., 1938, 62: 237-290. 52 refs. Abstracted in: Biol. Abstr., Balt., 1938, 12: No. 3765; Chem. Abstr., 1938, 32: 50778.

1185
Campbell, W. W. and Tweedy, W. R. THE EFFECT OF PARATHYROID EXTRACT UPON THE DISTRIBUTION AND EXCRETION OF LABELED PHOSPHORUS. Fed. Proc., Balt., 1942, 1: 104-105. An abstract.

1186
Carnes, W. H. THE DEMONSTRATION OF AN EFFECT OF PARATHYROID EXTRACT ON BONE MATRIX. Am. J. Path., 1950, 26: 736. An abstract. "These observations indicate that (1) bone matrix may be destroyed by the action of parathyroid hormone irrespective of its mineral content, (2) the levels of serum calcium and metastatic calcification are a function of the mineral content of the resorbed matrix, and (3) calcification may be induced in cartilage and osteoid matrix through its action. These facts are not consistent with the theory that the hormone acts primarily upon some mechanism that causes solution of bone mineral."

1187
Cartier, P. and Simonart, J. HORMONE PARATHYROÏDIENNE ET MÉTABOLISME PHOSPHO-CALCIQUE. Rev. orthop., Par., 1946, 32: 160-168. 42 refs.

1188
Cera, B. and Bellini, L. RICERCHE SUL COMPORTAMENTO DELLA GLICEROFOSFATASI DEL SIERO E DEL TESSUTO OSSEO IN ANIMALI TRATTATI CON UN FARMACO AD AZIONE IPERCALCEMIZZANTE PARATIREOSIMILE. Pathologica, Genova, 1940, 32: 410-413. Abstracted in: Biol. Abstr., Balt., 1947, 21: No. 17116; Chem. Abstr., 1941, 35: 14749.

1189
Cerqua. L'EFFET DE LA THYROXINE, DE LA PARATHYROÏDINE ET DE L'ERGOSTEROL SUR LA RÉGÉNÉRATION DES OS. J. Egypt. M. Ass., 1933, 16: 668-673.

1190
Chang, H. Y. GRAFTS OF PARATHYROID AND OTHER TISSUES TO BONE. Anat. Rec., 1951, 111: 23-48. pl. 7 refs. Abstracted in: Biol. Abstr., Balt., 1952, 26: No. 28005; Excerpta med., Sect. 1, 1952, 6: No. 1312. "These findings corroborate Barnicot's observation of a marked and specific local resorption of bone near the parathyroid draft."

1191
Cohn, B. N. E. KNOCHENVERÄNDERUNGEN NACH PARATHORMONEINVERLEIBUNG. Zschr. ges. exp. Med., 1934, 92: 540-551. 20 refs. Abstracted in: Biol. Abstr., Balt., 1935, 9: No. 7260.

1192
Collip, J. B., Pugsley, L. I., Selye, H. and Thomson, D. L. OBSERVATIONS CONCERNING THE MECHANISM OF PARATHYROID HORMONE ACTION. Brit. J. Exp. Path., 1934, 15: 335-336. 8 refs. In rats complete nephrectomy was followed by parathyroid hormone injections. Histologic examination of the bones showed marked osteoclastic resorption. It was concluded that the action of the parathyroid hormone on bone is independent of its possible direct influence on the renal threshold for phosphates. The article contains a discussion of pertinent theories.

1193
Coppo, M. and Molinari-Tosatti, P. OSSERVAZIONI SULLA DISTRIBUZIONE DEL MAGNESIO NEGLI ORGANI DI RATTI TIROPARATIREOPRIVI E DI RATTI TRATTATI CON PARATORMONE. Boll. Soc. ital. biol. sper., 1934, 9: 36-39. Abstracted in: Chem. Abstr., 1934, 28: 5112^{4}.

1194
Cozza, F. ACTION OF MASSIVE DOSES OF PARATHYROID HORMONE AND VITAMIN D_2 ON THE BONES DURING GROWTH. Ann. Med. nav. colon., 1950, 55: 730-737. Abstracted in: Excerpta med., Sect. 3, 1951, 5: No. 2158. "Young guineapigs were treated by doses of parathyroid hormone and vitamin D_2 in various proportions. From these investigations it is concluded that the 2 substances have an independent action. These conclusions were reached after haematochemical, radiological and anatomopathological examinations." - Excerpta med.

1195
Downs, W. L. THE EFFECTS OF PARATHYROID EXTRACT ON THE BONE LESION INDUCED BY BERYLLIUM COMPOUNDS. 57p. University of Rochester Atomic Energy Project, Rochester, N. Y. (UR-271) 9 pl. 51 refs. Abstracted in: Fed. Proc., Balt., 1954, 13: 350.

HORMONAL INFLUENCE - PARATHYROID (Continued)

1196
Dragstedt, C. A. and Kearns, J. E., Jr. EXPERIMENTAL STUDY OF BONE REPAIR: EFFECT OF THYROPARATHYROIDECTOMY AND OF THE ADMINISTRATION OF PARATHORMONE. Arch. Surg., 1932, 24: 893-904. 25 refs. Abstracted in: Biol. Abstr., Balt., 1933, 7: No. 20952; Chem. Abstr., 1932, 26: 5140. "It does not appear probable that the administration of parathormone will facilitate bone repair in any case except one of parathyroid deficiency. Thyroid deficiency uncomplicated by parathyroid deficiency did not delay the healing of a bone defect."

1197
Eger, W. and Titze, G. DIE EPITHELKÖRPERCHEN, VITAMIN D UND A.T. 10 UND DIE BEZIEHUNGEN ZU DEN KNOCHEN. Klin. Wschr., 1942, 21: 859-862. 17 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1943-44, 13: No. 2046. "Rats, intact and parathyroidectomised, received doses of vitamin D or A.T. 10.... The histology of the femur metaphyses was studied. The action of vitamin D and of A.T. 10 on the bone is described as enhanced after parathyroidectomy. The peculiar fact is discussed that vitamin D in physiological amounts is antagonistic to parathyroid hormone but in pathological amounts appears to reinforce it." - Nutrit. Abstr.

1198
Engel, M. B. and Catchpole, H. R. EXCRETION OF URINARY MUCOPROTEIN FOLLOWING PARATHYROID EXTRACT IN RATS. Proc. Soc. Exp. Biol., N. Y., 1953, 84: 336-338. 9 refs. Abstracted in: Chem. Abstr., 1954, 48: 2908[a]. "In a 72-hour period control rats excreted 0.35-1.92 mg. of urinary mucoprotein, determined as mannose-galactose standard. After injection of 1000 units of parathyroid hormone, mucoprotein excretion was 0.52-4.52 mg. in the same period. This increase was correlated in time with a solution of bone matrix, with an increase in plasma mucoprotein, and with the appearance of mucoprotein granules in kidney tubule cells and mucoprotein-containing casts in tubules." - Chem. Abstr.

1199
Engel, M. B., Catchpole, H. R. and Joseph, N. R. THE EFFECT OF PARATHYROID EXTRACT ON GROUND SUBSTANCE AND CALCIUM OF BONE. Tr. Conf. Metab. Interrelat., 1953, 5.Conf., 119-129. Conference Discussion: p. 126-129. 152 refs.

1200
Engel, M. B., Joseph, N. R. and Catchpole, H. R. EXPERIMENTAL STUDIES ON THE CALCIFICATION AND DISSOLUTION OF BONE AND CARTILAGE MATRIX. Proc. Inst. M., Chicago, 1954, 20: 65-66.

1201
Engel, P. ÜBER DIE BEEINFLUSSUNG DER CALLUSBILDUNG DURCH HORMONE. Deut. Zschr. Chir., 1934, 242: 213-216. 35 refs. Abstracted in: Biol. Abstr., Balt., 1936, 10: No. 20948. Parathyroid hormone injections stimulated callus formation in fractured ribs of rats. Ovosan and Präpitan had no effect.

1202
Engfeldt, B. and Hjertquist, S. O. THE FUNCTIONAL RELATION BETWEEN THE THYROID AND PARATHYROIDS AND THE EFFECT OF THE THYROID ON BONE TISSUE. Acta endocr., Kbh., 1954, 15: 109-118. 28 refs. Abstracted in: Chem. Abstr., 1954, 48: 5980[d].

1203
Fanconi, G. ZUR PATHOLOGIE DER PARATHYREOIDEA UND DES KALZIUM- UND PHOSPHATSTOFFWECHSELS. Deut. med. Wschr., 1953, 78: 85-89. A lecture on the role of the parathyroids in the regulation of calcium and phosphate metabolism in the body, including tooth and bone.

1204
Fantl, P. and Rome, M. N. THE RELATIONSHIP BETWEEN CALCIUM AND CITRATE IN FOWLS' BLOOD. Austral. J. Sc., 1947, 10: 19. 3 refs. Abstracted in: Chem. Abstr., 1948, 42: 2346[f]. The view that increased blood citrate in hypercalcemia is derived from the bone as a result of destructive action of excess of parathormone was not confirmed by these experiments.

1205
Frugoni, P. CONTENUTO MINERALE DELL'OSSO DI RATTI IN CARENZA ED IN ECCESSO DI ORMONE PARATIROIDEO. Sperimentale, 1934, 88: 27-36. 18 refs. Abstracted in: Chem. Abstr., 1934, 28: 5513[1]. In adult rats variations in the mineral content of bone were studied in thyroparathyroidectomized and normal animals given high doses of parathyroid hormone.

1206
Giangrasso, G. PARATIROIDI, VITAMINA C E FRATTURE SPERIMENTALI. II. Boll. Soc. ital. biol. sper., 1939, 14: 525-527. 5 refs.

1207
Hoff, F. and Homann, E. ZUR FRAGE DES EINFLUSSES VON VITAMIN D UND EPITHELKÖRPERHORMON AUF DEN KALKHAUSHALT. Zschr. ges. exp. Med., 1930, 74: 258-273. 34 refs. Abstracted in: Biol. Abstr., Balt., 1933, 7: No. 708.

1208
Hummon, I. F., Jr., Patras, M. C. and Templeton, R. D. THE INFLUENCE OF THYROID FEEDING AND THYRO-PARATHYROIDECTOMY ON BONE REGENERATION. Am. J. Physiol., 1936, 116: 84. An abstract. "The results show that thyroid feeding accelerated while thyroparathyroidectomy retarded bone regeneration in the standard group. In the vitamin B deficient group the thyroid fed animals showed very poor bone regeneration during their short survival period; the controls, living longer, showed better regeneration; and the thyro-parathyroidectomized animals, surviving the longest, showed the best regeneration."

1209
Ingalls, T. H., Donaldson, G. and Albright, F. THE LOCUS OF ACTION OF THE PARATHYROID HORMONE: EXPERIMENTAL STUDIES WITH PARATHYROID EXTRACT ON NORMAL AND NEPHRECTOMIZED RATS. J. Clin. Invest., 1943, 22: 603-608. 4 refs. Parathyroid extract injections produced osteitis fibrosa in nephrectomized and normal rats. Nephrectomy alone also produced bone resorption.

1210
Itoh, M. and Katagiri, S. ÜBER DIE EINFLUSSE VON PARATHYROIDEA-HORMON UND VITAMIN-D AUF DIE KNOCHENBRUCHHEILUNG SOWIE DIE INNERSEKRETORISCHEN DRÜSEN. Tr. Soc. path. jap., 1939, 29: 552-558. Abstracted in: Nutrit. Abstr., Aberdeen, 1939-40, 9: No. 2866.

1211
Itoh, M. and Suzuki, T. ÜBER DIE VERÄNDERUNGEN DER HARTGEWEBE DURCH WIEDERHOLTE INJEKTION VON PARATHYREOIDEA-HORMON. Tr. Soc. path. jap., 1937, 27: 522-526.

HORMONAL INFLUENCE - PARATHYROID (Continued)

1212
*Ivanova, S. A. INFLUENCE OF VITAMIN D AND PARATHYROID HORMONE ON THE HISTOGENETIC PROCESS OF HEALING OF BONE FRACTURE. C. rend. Acad. sc., URSS, 1941, 31: 714-716. In English. Abstracted in: Chem. Abstr., 1943, 37: 947[3].

1213
Jaffe, H. L. and Bodansky, A. EXPERIMENTAL FIBROUS OSTEODYSTROPHY (OSTEITIS FIBROSA) IN HYPERPARATHYROID DOGS. J. Ex. M., 1930, 52: 669-694. 2 pl. 50 refs. Abstracted in: Biol. Abstr., Balt., 1934, 8: No. 13713.

1214
Jaffe, H. L., Bodansky, A. and Blair, J. E. RATE OF DECALCIFICATION AND THE SITES OF BONE LESIONS IN EXPERIMENTAL HYPERPARATHYROIDISM. Proc. Soc. Exp. Biol., N. Y., 1931, 28: 793-794. 4 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1931-32, 1: No. 504.

1215
Jaffe, H. L., Bodansky, A. and Blair, J. E. THE EFFECT OF PARATHORMONE AND AMMONIUM CHLORIDE ON THE BONES OF RABBITS. J. Exp. M., 1932, 55: 695-701. 15 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1932-33, 2: No. 1307; Chem. Abstr., 1932, 26: 3303.

1216
Jaffe, H. L., Bodansky, A. and Blair, J. E. THE INFLUENCE OF AGE AND OF DURATION OF TREATMENT ON THE PRODUCTION AND REPAIR OF BONE LESIONS IN EXPERIMENTAL HYPERPARATHYROIDISM. J. Exp. M., 1932, 55: 139-154. 3 pl. 14 refs. Abstracted in: Biol. Abstr., Balt., 1933, 7: No. 5945; Chem. Abstr., 1932, 26: 1670. "Young guinea pigs are more susceptible than adults to the effects of single or repeated doses of parathormone, as shown by bone changes. ... In young and adult guinea pigs a compensation is established during prolonged parathormone treatment, which enables them to tolerate repeated large doses..."

1217
Jaffe, H. L., Bodansky, A. and Blair, J. E. THE SITES OF DECALCIFICATION AND OF BONE LESIONS IN EXPERIMENTAL HYPERPARATHYROIDISM. Arch. Path., Chic., 1931, 12: 715-728. 15 refs. Abstracted in: Biol. Abstr., Balt., 1933, 7: No. 8388. "Decalcification and reactive lesions are more prominent in experimental hyperparathyroidism in regions of normally active growth of bone and less prominent in regions of less active growth. In the latter, simple thinning of the bone is sometimes the only change observed."

1218
Jones, J. H. THE INFLUENCE OF THE REMOVAL OF THE PARATHYROID GLANDS ON THE DEVELOPMENT OF RICKETS IN RATS. J. Biol. Chem., 1934, 106: 701-705. 6 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1934-35, 4: No. 2535.

1219
Kalnins, V. and Ledina, H. DIE WIRKUNG DES EPITHELKÖRPERCHENHORMONS AUF ZÄHNE UND KNOCHEN NORMALER UND SKORBUTISCHER MEERSCHWEINSCHEN. Upsala läk. fören. förh., 1947, 52: 235-276. pl. 219 refs. Abstracted in: Excerpta med., Sect. 2, 1948, 1: No. 5011; Nutrit. Abstr., Aberdeen, 1947-48, 17: No. 4558.

1220
Keating, F. R., Jr. THE NORMAL AND PATHOLOGIC PHYSIOLOGY OF THE PARATHYROID GLANDS. Am. J. Orthodont., 1947, 33: 129-137. 14 refs. The role of the parathyroid gland in calcium and phosphorus metabolism and the metabolism of the bone are surveyed.

1221
Kozelka, F. L., Hart, E. B. and Bohstedt, G. GROWTH, REPRODUCTION, AND LACTATION IN THE ABSENCE OF THE PARATHYROID GLANDS. J. Biol. Chem., 1933, 100: 715-729. 14 refs. Abstracted in: Biol. Abstr., Balt., 1935, 9: No. 13906. "Normal bone development can occur in the absence of the parathyroid glands when vitamin D is fed." Dogs were used in this study. Ash per cent of femur, tibia, 7th rib, 12th rib and skull were determined.

1222
Leriche, R., Jung, A. and De Bakey, M. RECERCHES EXPÉRIMENTALES SUR LA CALCIFICATION DES TISSUS. INFLUENCE DE L'EXTRAIT PARATHYROÏDIEN SUR LA CALCIFICATION DE TRANSPLANTS LIBRES DE CARTILAGE. Ann. anat. path., Par., 1936, 13: 551-555. 2 refs.

1223
Levi della Vida, B. COMPORTAMENTO DEI SINGOLI SEGMENTI SCHELETRICI NELL'IPERED IPO-PARATIROIDISMO SPERIMENTALE CONTENUTO IN CALCIO E FOSFORO. Fisiol. & med., Roma, 1935, 6: 45-64. 14 refs.

1224
Lièvre, J. A. REINS ET LÉSIONS OSSEUSES. J. urol. méd., Par., 1949, 55: 8-17. 45 refs. Abstracted in: Chem. Abstr., 1952, 46: 8743[f].

1225
McJunkin, F. A., Tweedy, W. R. and McNamara, E. W. EFFECT OF PARATHYROID EXTRACT AND CALCIFEROL ON THE TISSUES OF THE NEPHRECTOMIZED RAT. Am. J. Path., 1937, 13: 325-333. pl. 16 refs. Abstracted in: Biol. Abstr., Balt., 1938, 12: No. 630.

1226
McLean, F. C. and Bloom, W. CALCIFICATION AND OSSIFICATION. MOBILIZATION OF BONE SALT BY PARATHYROID EXTRACT. Arch. Path., Chic., 1941, 32: 315-333. Abstracted in: Biol. Abstr., Balt., 1942, 16: No. 6796; Chem. Abstr., 1942, 36: 5517.

1227
McLean, F. C. and Bloom, W. MODE OF ACTION OF PARATHYROID EXTRACT ON BONE. Science, 1937, 85: 24. An abstract.

1228
McLean, F. C. and McCoy, R. H. CALCIFICATION IN RACHITIC CARTILAGE INDUCED BY ADMINISTRATION OF PHOSPHATE, AND BY PARATHYROID EXTRACT. J. Biol. Chem., 1936, 114: Proc. 55-66. An abstract.

1229
Majno, G., Perrottet, E., Rutishauser, E. and Schüpbach, S. LES PROTÉASES OSSEUSES ET SÉRIQUES APRÈS INJECTION D'HORMONE PARATHYROÏDIENNE. (NOTE PRELIMINAIRE). Arch. sc., Genève, 1951, 4: 400-407. 10 refs. Abstracted in: Chem. Abstr., 1952, 46: 10368[b]. In young dogs injections of parathyroid hormone resulted in bone resorption accompanied by a local increase of proteolytic activity.

1230
Malcolm, J., Griesbach, W. E., Bielschowsky, F. and Hall, W. H. HYPERPLASIA OF THE PARATHYROIDS ASSOCIATED WITH OSTEITIS FIBROSA IN RATS TREATED WITH THIOURACIL AND RELATED COMPOUNDS. Brit. J. Exp. Path., 1949, 30: 17-23. pl. 16 refs. Goitrogens administered to 6-8 week old rats (both sexes) caused enlargement of the parathyroids. In 9 of 33 animals there was a concomitant generalized osteitis fibrosa. Histological findings are discussed.

HORMONAL INFLUENCE - PARATHYROID (Continued)

1231
Marx, J. DAS VERHALTEN DES MAGNESIUMSPIEGELS BEI DER RECKLINGHAUSENSCHEN ERKRANKUNG. Arch. klin. Chir., 1935, 182: 214-219. 5 refs. Abstracted in: Biol. Abstr., Balt., 1937, 11: No. 3759.

1232
Milne, M. D. OBSERVATIONS ON THE ACTION OF THE PARATHYROID HORMONE. Clin. Sc., Lond., 1951, 10: 471-486. 38 refs. Abstracted in: Biol. Abstr., Balt., 1952, 26: No. 15000. "These observations are in support of a hypothesis that the predominant action of the parathyroid hormone in hypoparathyroid states is the renal action described by Albright et al; whereas, in the normal, an action directly stimulating osteoclastic resorption of bone is of greater importance."

1233
Molinari-Tosatti, P. DISTRIBUZIONE DEL CALCIO E DEL FOSFORO NEI VARI ORGANI E TESSUTI DI RATTI IN ECCESSO ED IN CARENZA DI ORMONE PARATIROIDEO. Sperimentale, 1934, 88: 504-526. 65 refs. French translation in: Arch. ital. biol., 1935, 93: 149-164.

1234
Morgan, A. F. and Samisch, Z. THE SEQUENCE AND EXTENT OF TISSUE CHANGES RESULTING FROM MODERATE DOSES OF VIOSTEROL AND PARATHYROID EXTRACT. J. Biol. Chem., 1935, 108: 741-752. 15 refs. Abstracted in: Biol. Abstr., Balt., 1936, 10: No. 754; Chem. Abstr., 1935, 29: 4052[3]. Rats were used in this study. The serum, metaphyses, shafts of femurs, hearts, lungs and kidneys were examined for ash, water, fat, and, in the last case, also for calcium and phosphorus content.

1235
Morgan, A. F., Kimmel, L., Thomas, R. and Samisch, Z. THE EFFECT OF MODERATE DOSES OF VIOSTEROL AND OF PARATHYROID EXTRACT UPON BONE COMPOSITION. J. Biol. Chem., 1933, 100: Proc., 71-72. An abstract. Abstracted in: Nutrit. Abstr., Aberdeen, 1933-34, 3: No. 1573. "It is stated that, in rats, treatment with varying doses of viosterol and parathyroid extract affected the ash content of the bone metaphyses more rapidly than that of the shaft. Calcium and phosphate retentions were decreased by injection of parathyroid extract." - Nutrit. Abstr.

1236
Morgan, A. F., Kimmel, L., Thomas, R. and Samisch, Z. THE EFFECTS OF MODERATE DOSES OF VIOSTEROL AND OF PARATHYROID EXTRACT UPON RATS. J. Biol. Chem., 1934, 106: 531-544. 21 refs. Abstracted in: Chem. Abstr., 1934, 28: 6793[1].

1237
Mourgue, M. RECHERCHES BIOCHIMIQUES SUR L'ACTION COMPARÉE DE L'HORMONE PARATHYROÏDIENNE ET DE LA VITAMINE D DANS LES OSSIFICATIONS DE RÉPARATION. J. physiol. path. gén., 1939-1940, 37: 1269-1276. 17 refs. Abstracted in: Chem. Abstr., 1942, 36: 4875[3]; Nutrit. Abstr., Aberdeen, 1945-46, 15: No. 2183.

1238
Neufeld, A. H. and Collip, J. B. THE PRIMARY ACTION OF THE PARATHYROID HORMONE. Endocrinology, 1942, 30: 135-141. 30 refs. Abstracted in: Chem. Abstr., 1942, 36: 1652[7]. Studies made on rats, cats and dogs, after nephrectomy or ligation of the renal vessels or ureters and injections of parathyroid extract, led to the conclusion that the primary action of the parathyroid hormone is on renal phosphate excretion and phosphorus metabolism rather than on bone osteoclasts and calcium metabolism.

1239
Nitschke, A. UNTERSUCHUNGEN ÜBER DIE ABHANGIGKEIT DER KNOCHENBILDUNG JUNGER SAUGENDER RATTEN VON SCHILDDRÜSEN- UND NEBENSCHILDDRÜSENTÄTIGKEIT DES MUTTERTIERES. Mschr. Kinderh., 1934, 62: 33-38.

1240
O'Donovan, D. K. THE PRIMARY SITE OF ACTION OF PARATHYROID HORMONE. Irish J. M. Sc., 1951, 6.ser., No. 306, 252-264. 32 refs. Current theories are surveyed and the view is advanced that the parathyroid hormone has a direct resorptive effect upon bone and that this action is dependent upon a self-limiting enzyme system. The results of some clinical observations and animal experiments are discussed.

1241
Parhon, C.-I., Dérevici, H. and Dérevici, M. SUR LE CALCIUM ET LE PHOSPHORE DES OS CHEZ DES CHIENS HYPERTHYROÏDISÉS, HYPERPARATHYROÏDISÉS OU SOUMIS A CES DEUX TRAITEMENTS COMBINÉS. C. rend. Soc. biol., 1932, 109: 1396-1398. Abstracted in: Biol. Abstr., Balt., 1934, 8: No. 5766; Chem. Abstr., 1932, 26: 4088. "Hyperthyroidization of dogs by thyroid ingestion or injection of thyroxine, hyperparathyroidization by injection of parathormone, or both, decreased calcium of the bones. Combined treatment and thyroxine injection increased phosphorus, but injection of parathormone decreased phosphorus." - Biol. Abstr.

1242
Parhon, C.-I., Lavrenenco, N. and Stirbu, A. RECHERCHES HISTOLOGIQUES SUR LES LIPOÏDES DES PARATHYROÏDES CHEZ LES ANIMAUX PORTEURS DE FRACTURES EXPÉRIMENTALES. C. rend. Soc. biol., 1932, 109: 245-246. In rabbits after experimental fracture of the foreleg an increase in granulations was observed in the external parathyroids.

1243
Pazzagli, R. and Paoletti Perini, A. PARATIROIDI E CALLO DI FRATTURA. Sperimentale, 1934, 88: 456-481. 50 refs. Abstracted in: Biol. Abstr., Balt., 1936, 10: No. 21338. "In rabbits with multiple costostomies unilateral parathyroidectomy retarded the formation of callus, which remained fibrous for a long period. Injections of parathyroid extracts hastened the formation and ossification of callus, but non-specific protein had no appreciable effect on callus formation. Experiments were controlled by radiological and histological examination." - Biol. Abstr.

1244
Pugsley, L. I. and Selye, H. THE HISTOLOGICAL CHANGES IN THE BONE RESPONSIBLE FOR THE ACTION OF PARATHYROID HORMONE ON THE CALCIUM METABOLISM OF THE RAT. J. Physiol., 1933, 79: 113-117. 3 refs. Abstracted in: Chem. Abstr., 1933, 27: 5394; Nutrit. Abstr., Aberdeen, 1933-34, 3: No. 3291. In rats, fed daily doses of parathyroid hormone, a study was made of the relation between the early and late histologic changes in the long bones and the accompanying changes in calcium metabolism. All changes were found to coincide exactly.

1245
Reynolds, L., Corrigan, K. E., Hayden, H. S., Macy, I. G. and Hunscher, H. A. DIFFRACTION STUDIES OF THE EFFECT OF SODIUM FLUORIDE AND PARATHORMONE UPON THE INCISORS AND TIBIAE OF RATS. Am. J. Roentg., 1938, 39: 103-126. 58 refs. Abstracted in: Chem. Abstr., 1938, 32: 2187[7]; Nutrit. Abstr., Aberdeen, 1938-39, 8: No. 731. "The interest in this work was centered on the structural changes such as crystal structure, orientation, and particle size, as affected by diets containing sodium fluoride, injection of parathormone, and combinations of the two, and also a mixture of sodium fluoride with aluminum sulphate."

HORMONAL INFLUENCE - PARATHYROID (Continued)

1246
Roche, J. and Mourgue, M. ACTION COMPARÉE DE L'HORMONE PARATHYROÏDIENNE ET DE LA VITAMINE D_2 SUR LA CONSOLIDATION DES FRACTURES OSSEUSES EXPÉRIMENTALES. C. rend. Soc. biol., 1939, 130: 1138-1141. 1 ref. Abstracted in: Biol. Abstr., Balt., 1939, 13: No. 12863; Nutrit. Abstr., Aberdeen, 1939-40, 9: No. 247.

1247
Rumiantsev, A. V. and Berezkina, L. F. ON THE MECHANISM OF ACTION OF THE PARATHYROID HORMONE ON THE BONE TISSUE IN EXPERIMENTS IN VITRO. C. rend. Acad. sc. URSS, 1944, 43: 270-272. 11 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1944-45, 14: No. 3329.

1248
Selye, H. ACTION OF PARATHYROID HORMONE ON THE EPIPHYSEAL JUNCTION OF THE YOUNG RAT. Arch. Path., Chic., 1932, 14: 60-65. 14 refs.

1249
Selye, H. MECHANISM OF PARATHYROID HORMONE ACTION. Arch. Path., Chic., 1942, 34: 625-632. pl. 24 refs. Abstracted in: Chem. Abstr., 1943, 37: 1490^3. "Complete nephrectomy in the rat does not prevent the action of the parathyroid hormone on the bones. Nephrectomy itself causes mild bone changes, probably by stimulating the production of the hormone, since these can be prevented by parathyroidectomy. Neither the liver nor the thyroid has any effect on the action of the parathyroid hormone." - Chem. Abstr.

1250
Selye, H. ON THE STIMULATION OF NEW BONE-FORMATION WITH PARATHYROID EXTRACT AND IRRADIATED ERGOSTEROL. Endocrinology, 1932, 16: 547-668. 14 refs. Abstracted in: Biol. Abstr., Balt., 1934, 8: No. 3280.

1251
Selye, H., Mortimer, H., Thomson, D. L. and Collip, J. B. EFFECT OF PARATHYROID EXTRACT ON THE BONES OF THE HYPOPHYSECTOMIZED RAT: A HISTOLOGIC STUDY. Arch. Path., Chic., 1934, 18: 878-880. 3 refs. Abstracted in: Biol. Abstr., Balt., 1935, 9: No. 13957; Nutrit. Abstr., Aberdeen, 1934-35, 4: No. 3585.

1252
Shelling, D. H., Asher, D. E. and Jackson, D. A. CALCIUM AND PHOSPHORUS STUDIES. VII. THE EFFECTS OF VARIATIONS IN DOSAGE OF PARATHORMONE AND OF CALCIUM AND PHOSPHORUS IN THE DIET ON THE CONCENTRATIONS OF CALCIUM AND INORGANIC PHOSPHORUS IN THE SERUM AND ON THE HISTOLOGY AND CLINICAL COMPOSITION OF THE BONES OF RATS. Bull. Johns Hopkins Hosp., 1933, 53: 348-389. 32 refs. Abstracted in: Biol. Abstr., Balt., 1935, 9: No. 9260; Chem. Abstr., 1934, 28: 7321^4.

1253
Silberberg, M. and Silberberg, R. THE EFFECTS OF PARATHYROID HORMONE AND CALCIUM GLUCONATE ON THE SKELETAL TISSUES OF MICE. Am. J. Path., 1943, 19: 839-859. 3 pl. 27 refs. Abstracted in: Biol. Abstr., Balt., 1944, 18: No. 604; Chem. Abstr., 1944, 38: 1556^2. "Combined administration of parathyroid hormone and calcium gluconate does not intensify the ageing effect exerted on the growing cartilage by each substance alone." Parathyroid hormone promotes the changes characteristic of skeletal ageing. Calcium gluconate also promotes the ageing of growing epiphyseal cartilage. Resorptive processes, however, are temporarily inhibited in both young and adult mice.

1254
Snapper, I. PARATHYROID HORMONE AND MINERAL METABOLISM. Bull. N. York Acad. M., 1953, 29: 612-624. 27 refs. A review. Excess parathyroid hormone production stimulates proliferation of cancellous bone osteoclasts thereby increasing bone trabeculae erosion. This results in hypercalcemia and hypercalciuria and in hypo- rather than hyperphosphatemia due to the strong parathyroid hormone stimulation of phosphate excretion by the kidneys. "There is also reason to believe that the spread of the decalcification of the skeleton in hyperparathyroidism may depend not only upon a negative calcium and phosphorus balance, but also upon other as yet obscure mechanisms."

1255
Striganova, A. R. VLIIANIE GORMONA OKOLOSHCHITOVIDNOI ZHELEZY NA BELKOVYI METABOLIZM KOSTNOI TKANI. [INFLUENCE OF PARATHYROID HORMONE ON ALBUMIN METABOLISM OF THE OSSEOUS TISSUE] Arkh. pat., Moskva, 1949, 11: No. 2, 50-56. 10 refs. Abstracted in: Chem. Abstr., 1950, 44: 1589^i. Intramuscular injection of a large dose of "paratireokrin" caused a sharp increase of proteolytic activity of the osseous tissue and considerable disturbance in nitrogen metabolism equilibrium; general nitrogen content decreased while amino-nitrogen content remained normal. After repeated "paratireokrin" injections, only proteolytic activity of bone is increased. The regular consecutive variations in protein metabolism of bone after "paratireokrin" injections represent a specific reaction for injected hormone and point to the intensive processes of protein metabolism in bone.

1256
Talmage, R. V., Kraintz, F. W. and Kraintz, L. EFFECT OF PARATHYROIDS ON RADIOCALCIUM UPTAKE AND EXCHANGE IN RAT TISSUES. Proc. Soc. Exp. Biol., N. Y., 1952, 80: 553-557. 5 refs. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 1008; Chem. Abstr., 1952, 46: 10342^i.

1257
Talmage, R. V., Lotz, W. E. and Comar, C. L. ACTION OF PARATHYROID EXTRACT ON BONE PHOSPHORUS AND CALCIUM IN THE RAT. Proc. Soc. Exp. Biol., N. Y., 1953, 84: 578-582. 9 refs. Abstracted in: Chem. Abstr., 1954, 48: 4073^g.

1258
Thomson, D. L. and Collip, J. B. THE PARATHYROID GLANDS. Physiol. Rev., 1932, 12: 309-383. 543 refs. See particularly p. 339-345 for relation of the parathyroid hormone to the calcium of the skeleton.

1259
Tweedy, W. R. and Campbell, W. W. THE EFFECT OF PARATHYROID EXTRACT UPON THE DISTRIBUTION, RETENTION, AND EXCRETION OF LABELED PHOSPHORUS. J. Biol. Chem., 1944, 154: 339-347. 16 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1944-45, 14: No. 2484. A study of various tissues including bone.

1260
Tweedy, W. R., Chilcote, M. E. and Patras, M. C. THE DISTRIBUTION, RETENTION, AND EXCRETION OF RADIOPHOSPHORUS FOLLOWING THYROPARATHYROIDECTOMY, OR BILATERAL NEPHRECTOMY, AND THE ADMINISTRATION OF PARATHYROID EXTRACT. J. Biol. Chem., 1947, 168: 597-610. 15 refs. Abstracted in: Chem. Abstr., 1947, 41: 5631^b.

HORMONAL INFLUENCE - PARATHYROID (Continued)

1261
Weinmann, J. P. and Schour, I. EXPERIMENTAL STUDIES IN CALCIFICATION. III. THE EFFECT OF PARATHYROID HORMONE ON THE ALVEOLAR BONE AND TEETH OF THE NORMAL AND RACHITIC RAT. Am. J. Path., 1945, 21: 857-875. 4 pl. 21 refs. Abstracted in: Biol. Abstr., Balt., 1945, 19: No. 21920; Nutrit. Abstr., Aberdeen, 1945-46, 15: No. 3430.

1262
Wilton, A. THE ACTION OF PARATHORMONE (COLLIP) ON BONE TISSUE. Acta paediat., Upps., 1934, 17: 72-82. 2 pl. 40 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1934-35, 4: No. 3586. "The histological changes in the ribs of guinea pigs after single injections of parathormone (20 units per 100 g.) are described. The collagen disappears along with the calcium and not subsequently as has been stated." - Nutrit. Abstr.

1263
Yanagida, H. [EFFECT OF PARATHORMONE PREPARATION ON POTASSIUM AND CALCIUM METABOLISM IN ALBINO RABBIT AND THE LATTERS' EFFECT ON THE HEALING OF FRACTURED BONE] Sei-i-kai M. J., 1939, 58: 895-956. 3 pl. 30 refs. Abstracted in: Chem. Abstr., 1942, 36: 5526[9].

1264
Zetterström, R. and Engfeldt, B. RENEWAL OF BONE PHOSPHATE IN EXPERIMENTAL HYPERPARATHYROIDISM. Nature, Lond., 1951, 168: 81-82. 10 refs. Abstracted in: Chem. Abstr., 1952, 46: 620[h]; Nutrit. Abstr., Aberdeen, 1951-52, 21: No. 3666.

See:

154	156	189	499	641
689	698	704	763	793
808	842	908	910	1173
1364	1375	1434	1483	2128
2129	2375	2706		

HORMONAL INFLUENCE - PITUITARY

1265
Albright, F. and Bartter, F. C. THE EFFECTS OF ANTERIOR PITUITARY ADRENOCORTICOTROPIC HORMONE (ACTH) ON BONE METABOLISM. Tr. Conf. Metab. Interrelat., 1950, 2.meet., 258-267. 1 ref. A report on experiments which indicate that calcium loss in ACTH therapy might result from pitressin present in ACTH as a contaminant, rather than from the hormone itself.

1266
Asling, C. W., Simpson, M. E., Li, C. H. and Evans, H. M. DIFFERENCES IN THE RESPONSE TO GROWTH HORMONE OF THE RAT'S PROXIMAL AND DISTAL TIBIAL EPIPHYSES. Anat. Rec., 1950, 107: 399-407. 8 refs. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 30584; Excerpta med., Sect. 1, 1951, 5: No. 504.

1267
Asling, C. W., Walker, D. G., Simpson, M. E. and Evans, H. M. DEATHS IN RATS SUBMITTED TO HYPOPHYSECTOMY AT AN EXTREMELY EARLY AGE AND THE SURVIVAL EFFECTED BY GROWTH HORMONE. Anat. Rec., 1952, 114: 49-65. 2 pl. 6 refs. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 12765. Brain growth continued while cranial growth was arrested due to the cessation of endochondral osteogenesis. Treatment with growth hormone restored normal osteogenesis and cranial growth.

1268
Asling, C. W., Walker, D. G., Simpson, M. E. and Evans, H. M. DIFFERENCES IN THE SKELETAL DEVELOPMENT ATTAINED BY 60-DAY-OLD FEMALE RATS HYPOPHYSECTOMIZED AT AGES VARYING FROM 6 TO 28 DAYS. Anat. Rec., 1950, 106: 555-569. pl. 11 refs.

1269
Baker, B. L. and Ingle, D. J. GROWTH INHIBITION IN BONE AND BONE MARROW FOLLOWING TREATMENT WITH ADRENOCORTICOTROPIN (ACTH). Endocrinology, 1948, 43: 422-429. 1 pl. 17 refs. Examination of the tibias of adult male rats treated with ACTH in doses of 1 and 3 mg. daily for 21 days revealed retardation of chondrogenesis and osteogenesis, and atrophy of red marrow with apparent replacement by fat. Changes in the vertebrae were less noticeable. Variations of diet did not significantly modify these results.

1270
Barbour, E. P. and Cook, S. F. THE EFFECTS OF LOW PHOSPHORUS DIET AND HYPOPHYSECTOMY ON THE STRUCTURE OF COMPACT BONE AS SEEN WITH THE ELECTRON MICROSCOPE. Anat. Rec., 1954, 118: 215-230. 13 refs.

1271
Bartter, F. C., Forbes, A. P. and Albright, F. A COMPARISON OF THE EFFECT ON BONE FORMATION OF THE HYPERADRENOCORTICISM OF CUSHING'S SYNDROME WITH THAT INDUCED BY ADRENOCORTICOTROPIC HORMONE (ACTH). J. Clin. Endocr., 1948, 8: 592. An abstract. Data on clinical studies, which support the hyopthesis that ACTH causes elaboration of an adrenal cortical hormone which inhibits the production of bone matrix by osteoblasts.

1272
Becks, H. and Evans, H. M. ATLAS OF THE SKELETAL DEVELOPMENT OF THE RAT (LONG-EVANS STRAIN); NORMAL AND HYPOPHYSECTOMIZED. San Francisco, American Institute of Dental Medicine, 1953. 2v. 45 refs.

1273
Becks, H., Asling, C. W., Collins, D. A., Simpson, M. E., Li, C. H. and Evans, H. M. RESPONSE TO PITUITARY GROWTH HORMONE AND THYROXIN OF THE THIRD METACARPAL IN THE HYPOPHYSECTOMIZED FEMALE RAT. Anat. Rec., 1948, 101: 17-22. Abstracted in: Biol. Abstr., Balt., 1949, 23: No. 702; Excerpta med., Sect. 1, 1949, 3: No. 721. Injections of pituitary growth hormone, 285 to 433 days after hypophysectomy reactivated chondrogenesis and osteogenesis at the epiphyseal cartilage plate. Injections of thyroxin caused epiphyseal closure. Injections of both hormones had a similar effect.

1274
Becks, H., Asling, C. W., Simpson, M. E., Li, C. H. and Evans, H. M. THE GROWTH OF HYPOPHYSECTOMIZED FEMALE RATS FOLLOWING CHRONIC TREATMENT WITH PURE PITUITARY GROWTH HORMONE. III. SKELETAL CHANGES: TIBIA, METACARPAL, COSTOCHONDRAL JUNCTION AND CAUDAL VERTEBRAE. Growth, Phila., 1949, 13: 175-189. 7 refs. Abstracted in: Biol. Abstr., Balt., 1950, 24: No. 6146. "The injection of pure growth hormone for 14 months in hypophysectomized rats resulted in marked growth of all skeletal dimensions studied. The length of the tibia actually exceeded normal, while the metacarpals and the caudal vertebrae equalled normal length. The bones also grew in breadth. All bones examined histologically showed lines of accretion indicating that periosteal osteogenesis was stimulated."

1275
Becks, H., Collins, D. A., Asling, C. W., Simpson, M. E., Li, C. H. and Evans, H. M. THE GIGANTISM PRODUCED IN NORMAL RATS BY INJECTION OF THE PITUITARY GROWTH HORMONE. V. SKELETAL CHANGES: SKULL AND DENTITION. Growth, Phila., 1948, 12: 55-67. 3 refs. Abstracted in: Biol. Abstr., Balt., 1948, 22: No. 23721.

HORMONAL INFLUENCE - PITUITARY (Continued)

1276
Becks, H., Kibrick, E. A., Marx, W. and Evans, H. M. THE EARLY EFFECT OF HYPOPHYSECTOMY AND OF IMMEDIATE GROWTH HORMONE THERAPY ON ENDOCHONDRAL BONE FORMATION. Growth, Ithaca, 1941, 5: 449-456. 6 refs. Abstracted in: Biol. Abstr., Balt., 1942, 16: No. 12099; Chem. Abstr., 1942, 36: 32449. "Skeletal structures were thus maintained after hypophysectomy by a dose level of growth hormone inadequate for maintaining normal body weight gains."

1277
Becks, H., Ray, R. D., Simpson, M. E. and Evans, H. M. EFFECT OF THYROXINE AND THE ANTERIOR PITUITARY GROWTH HORMONE ON ENDOCHONDRAL OSSIFICATION. SPECIES USED: THE RAT. Arch. Path., Chic., 1942, 34: 334-357. Abstracted in: Biol. Abstr., Balt., 1943, 17: No. 4722; Chem. Abstr., 1943, 37: 14901. "In rats with the thyroid, parathyroids and hypophysis removed, the growth hormone extract and thyroxine repaired the defect, which thyroxine alone failed to do." - Chem. Abstr.

1278
Becks, H., Scow, R. O., Simpson, M. E., Asling, C. W., Li, C. H. and Evans, H. M. RESPONSE BY THE RAT THYRO-PARATHYROIDECTOMIZED AT BIRTH TO GROWTH HORMONE AND TO THYROXIN GIVEN SEPARATELY OR IN COMBINATION. III. SKELETAL CHANGES: TIBIA, METACARPAL, AND CAUDAL VERTEBRAE. Anat. Rec., 1950, 107: 299-317. 5 refs. Abstracted in: Excerpta med., Sect. 3, 1951, 5: No. 104. Histologic and roentgenographic findings showed that thyroidectomy retarded growth and differentiation, that growth hormone stimulated growth without differentiation, and that thyroxin stimulated both growth and differentiation.

1279
Becks, H., Simpson, M. E. and Evans, H. M. OSSIFICATION AT THE PROXIMAL TIBIAL EPIPHYSIS IN THE RAT. II. CHANGES IN FEMALES AT PROGRESSIVELY LONGER INTERVALS FOLLOWING HYPOPHYSECTOMY. Anat. Rec., 1945, 92: 121-133. 3 pl. 9 refs. Abstracted in: Biol. Abstr., Balt., 1945, 19: No. 21511.

1280
Becks, H., Simpson, M. E., Evans, H. M., Ray, R. D., Li, C. H. and Asling, C. W. RESPONSE TO PITUITARY GROWTH HORMONE AND THYROXIN OF THE TIBIAS OF HYPOPHYSECTOMIZED RATS AFTER LONG POSTOPERATIVE INTERVALS. Anat. Rec., 1946, 94: 631-655. 3 pl. 7 refs. Abstracted in: Biol. Abstr., Balt., 1946, 20: No. 17160. Osteogenic processes were reawakened in the epiphyseal cartilage by administration of pituitary growth hormone. Thyroxine had a synergic effect on this response by the epiphyseal cartilage but antagonized the response by cartilage covering the head of the tibia.

1281
Becks, H., Simpson, M. E., Li, C. H. and Evans, H. M. EFFECTS OF ADRENOCORTICOTROPIC HORMONE ON THE OSSEOUS SYSTEM IN NORMAL RATS. Endocrinology, 1944, 34: 305-310. 2 pl. 2 refs. Abstracted in: Chem. Abstr., 1944, 38: 4019[8]; Biol. Abstr., Balt., 1944, 19: No. 19103; Nutrit. Abstr., Aberdeen, 1944-45, 14: No. 2386. Chondrogenesis and osteogenesis in the epiphyseal region of the tibia were retarded.

1282
Becks, H., Simpson, M. E., Marx, W., Li, C. H. and Evans, H. M. ANTAGONISM OF PITUITARY ADRENOCORTICOTROPIC HORMONE (ACTH) TO THE ACTION OF GROWTH HORMONE ON THE OSSEOUS SYSTEM OF HYPOPHYSECTOMIZED RATS. Endocrinology, 1944, 34: 311-316. 2 pl. 4 refs. "Comparisons have been made of the proximal epiphyseal regions of the tibias of hypophysectomized rats, when uninjected, injected with ACTH, with growth hormone or with the combination."

1283
Becks, H., Simpson, M. E., Scow, R. O., Asling, C. W. and Evans, H. M. SKELETAL CHANGES IN RATS THYROIDECTOMIZED ON THE DAY OF BIRTH AND THE EFFECTS OF GROWTH HORMONE IN SUCH ANIMALS; TIBIA, METACARPAL AND CAUDAL VERTEBRAE. Anat. Rec., 1948, 100: 561-575. 3 pl. 11 refs. Abstracted in: Biol. Abstr., Balt., 1949, 23: No. 14855; Ber. ges. Physiol., 1950, 141: 77; Excerpta med., Sect. 1, 1950, 4: No. 1571. Histologic examination confirmed measurement and roentgenographic evidence that skeletal growth and differentiation were greatly retarded but not completely checked by thyroidectomy. Injections of growth hormone resulted in increased size without advance in differentiation.

1284
Belkin, R. I. VLIIANIE VESHCHESTVA ZADNEI DOLI GIPOFIZA NA REGENERATSIIU Y AKSOLOTLEI. [INFLUENCE OF THE POSTERIOR PITUITARY SUBSTANCE ON REGENERATION IN THE AXOLOTL] Doklady Akad. nauk SSSR, 1934, 2: 317-320. 5 refs. Russian and German texts.

1285
Cannavò, L. and Indovina, R. EINFLUSS DES PROLANS AUF DIE MAGNESIUMBILANZ UND AUF DEN MAGNESIUMGEHALT VERSCHIEDENER ORGANE. Biochem. Zschr., 1933, 261: 45-46 and folded tab. 5 refs.

1286
Casuccio, C., Santacroce, A. and Banfo, G. STUDIO ISTO-CHIMICO SULL'AZIONE DELL'ACTH SULL'ACCRESCIMENTO SCHELETRICO CON RIFERIMENTI ALL'ACCRESCIMENTO MORFOLOGICO GENERALE. Ortop. traumat. app. motore, 1953, 21: 83-107. 36 refs. ACTH seemed to inhibit general growth and caused a disturbance in chondrogenesis and osteogenesis in the epiphyseal discs. Histochemical staining showed a decrease of mucopolysaccharides.

1287
Collins, D. A., Becks, H., Asling, C. W., Simpson, M. E. and Evans, H. M. CHANGES IN THE OSSIFICATION OF THE THIRD METACARPAL OCCURRING AT PROGRESSIVELY LONGER INTERVALS FOLLOWING HYPOPHYSECTOMY IN THE FEMALE RAT. Anat. Rec., 1948, 101: 13-16. 1 ref. Abstracted in: Excerpta med., Sect. 1, 1949, 3: No. 720. "Regressive changes, starting as early as 6 days following the operation, consisted in cessation of chondrogenesis and osteogenesis, and calcification of the juxtamedullary portions of the cartilage plate. These changes culminated in marked atrophy of the plate and its complete sealing off from the marrow cavities on both sides. This cartilage plate failed to be resorbed at the usual time of epiphyseal closure, and persisted in a dormant state."

1288
Collins, D. A., Becks, H., Asling, C. W., Simpson, M. E. and Evans, H. M. THE GROWTH OF HYPOPHYSECTOMIZED FEMALE RATS FOLLOWING CHRONIC TREATMENT WITH PURE PITUITARY GROWTH HORMONE. V. SKELETAL CHANGES: SKULL AND DENTITION. Growth, Phila., 1949, 13: 207-220. 8 refs. Abstracted in: Biol. Abstr., Balt., 1950, 24: No. 6148.

HORMONAL INFLUENCE - PITUITARY (Continued)

1289
Dandy, W. E. and Reichert, F. L. STUDIES ON EXPERIMENTAL HYPOPHYSECTOMY IN DOGS. III. SOMATIC, MENTAL AND GLANDULAR EFFECTS. Bull. Johns Hopkins Hosp., 1938, 62: 122-155. 13 refs. Abstracted in: Biol. Abstr., Balt., 1939, 13: No. 3810. In this study made with puppies, the rate of growth of the skull, of the right hind limb, the index of skeletal growth, the condition of epiphyseal lines and their time of closure were determined by roentgenograms made at frequent intervals. Data is summarized in tables.

1290
Domm, L. V. and Bloom, W. MEDULLARY BONE FORMATION IN BABY CHICKS FOLLOWING INJECTION OF GONADOGEN. Anat. Rec., 1931, 81: Suppl., 91-92. An abstract.

1291
Ducommun, P. L'INFLUENCE DE L'ACTH SUR LE CARTILAGE ET LE TISSU OSSEUX DES RATS IMMATURES. Acta endocr., Kbh., 1950, 4: 343-350. 11 refs. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 4619.

1292
Ellis, S., Hublé, J. and Simpson, M. E. INFLUENCE OF HYPOPHYSECTOMY AND GROWTH HORMONE ON CARTILAGE SULFATE METABOLISM. Proc. Soc. Exp. Biol., N. Y., 1953, 84: 603-605. 7 refs. Abstracted in: Chem. Abstr., 1954, 48: 4074^{b}.

1293
Ellis, S., Simpson, M. E. and Evans, H. M. THE EFFECT OF GROWTH HORMONE ON TIBIA GLYCOGEN CONTENT OF THE HYPOPHYSECTOMIZED RAT. Endocrinology, 1953, 52: 554-558. 7 refs. Abstracted in: Biol. Abstr., Balt., 1954, 28: No. 830; Chem. Abstr., 1954, 48: 3509^{f}.

1294
Evans, H. M., Asling, C. W., Simpson, M. E. and Becks, H. THE GROWTH OF HYPOPHYSECTOMIZED FEMALE RATS FOLLOWING CHRONIC TREATMENT WITH PURE PITUITARY GROWTH HORMONE. IV. SKELETAL CHANGES: DIFFERENCES IN RESPONSE FROM THAT OF INTACT RATS. Growth, Phila., 1949, 13: 191-205. 10 refs. Abstracted in: Biol. Abstr., Balt., 1950, 24: No. 6150. Study by roentgenograms. "In the growth of the hypophysectomized rats injected with growth hormone many skeletal disproportions developed, notably in the head and pelvis. In the injected intact rats, however, proportionality was maintained in the skeletal growth, almost without exception."

1295
Evans, H. M., Becks, H., Asling, C. W. and Li, C. H. DIFFERENCES IN BONES AS REGARDS THEIR RESPONSE TO THE PITUITARY GROWTH HORMONE. Anat. Rec., 1948, 100: 739.

1296
Evans, H. M., Becks, H., Asling, C. W., Simpson, M. E. and Li, C. H. THE GIGANTISM PRODUCED IN NORMAL RATS BY INJECTION OF THE PITUITARY GROWTH HORMONE. IV. SKELETAL CHANGES: TIBIA, COSTOCHONDRAL JUNCTION, AND CAUDAL VERTEBRAE. Growth, Phila., 1948, 12: 43-54. 3 refs. Normal female rats, approximately 210 days old, were used. "The outstanding fact of this experiment is that skeletal growth was still continuing, even though slowly, at the end of the 437 day period of growth hormone injection."

1297
Freud, J. and Dingemanse, E. THE ACTION OF LARGE DOSES OF GROWTH HORMONE IN HYPOPHYSECTOMIZED RATS. Acta brevia neerl., 1940, 10: 102-105. 2 refs. Skeletal growth in rats as exemplified by growth of pelvis and tail, and increase in body weight, was normal. Growth hormone action appeared to be independent of other endocrines and to have a direct effect upon the skeleton, muscles and various organs. It was believed that other points of attack existed apart from the cartilage of the epiphyseal growth disc.

1298
Freud, J., Levie, L. H. and Kroon, D. B. OBSERVATIONS ON GROWTH (CHONDROTROPHIC) HORMONE AND LOCALIZATION OF ITS POINT OF ATTACK. J. Endocr., Oxf., 1939, 1: 56-64. 3 pl. 30 refs. Abstracted in: Biol. Abstr., Balt., 1940, 14: No. 6398. In hypophysectomized rats cessation of longitudinal bone growth and epiphyseal closure were observed especially in the tail. Administration of growth hormone failed to reverse this condition. When growth hormone was administered before epiphyseal closure growth continued normally. It was concluded that the growth defect after hypophysectomy is localized in the growing epiphyseal cartilage and that the point of attack of growth hormone is the proliferating cartilage.

1299
Gaillard, P. J. DIE GLANDULA HYPOPHYSIS VON KANINCHEN IN DER GEWEBEZÜCHTUNG, IHRE STRUKTURVERÄNDERUNGEN UND IHR EINFLUSS AUF DAS WACHSTUM VON MIT DIESEN ZUSAMMENGEZÜCHTETEN KULTUREN OSTEOGENETISCHER ZELLEN. Protoplasma, Lpz., 1937, 28: 1-17. 7 refs.

1300
Geschwind, I. I., Li, C. H. and Evans, H. M. THE EFFECTS OF HYPOPHYSECTOMY AND OF GROWTH HORMONE ON THE UPTAKE OF RADIOACTIVE PHOSPHORUS BY TISSUES. Arch. Biochem., N. Y., 1951, 31: 168-182. The uptake of P^{32} by the tibia of the hypophysectomized rat was less than normal. When the hypophysectomized animal was maintained with growth hormone decrease in bone P^{32} uptake due to hypophysectomy was prevented.

1301
Handelsman, M. B. and Gordon, E. F. GROWTH AND BONE CHANGES IN RATS INJECTED WITH ANTERIOR PITUITARY EXTRACT. J. Pharm. Exp. Ther., 1930, 38: 349-362. pl. 18 refs. Abstracted in: Biol. Abstr., Balt., 1933, 7: No. 5613; Chem. Abstr., 1930, 24: 3282.

1302
Hsieh, K., Wang, T. and Blumenthal, H. T. EFFECT OF SOMATOTROPIN ON EMBRYONAL BONE GROWTH. Fed. Proc., Balt., 1953, 12: 392. An abstract. This experiment deals with the tibias of chick embryos. It was found that "growth hormone produces a marked increase in mitotic activity of both the growth zones and periosteum, followed by an increase in the average cell volume of the growth zone, resulting in a thickening of the latter area." There is also "an increase in total nitrogen content of bone, but no appreciable change in calcium or phosphorus content. ... results indicate an enhancement of protein synthesis in embryonal bone by growth hormone..."

1303
Jongh, S. E. de. GROEIHORMOON EN GROEI. Hormoon, 1951, 15: 154-169. 23 refs. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 35999. See particularly p. 156-157 for discussion of growth hormone and the skeleton.

HORMONAL INFLUENCE - PITUITARY (Continued)

1304
Jongh, S. E. de, Paesi, F. J. A. and Wieringen, G. van. THE INFLUENCE OF GROWTH HORMONE ON THE GROWTH OF THE SKELETON AND SOFT TISSUES OF THE BODY. Arch. internat. pharm. dyn., Par., 1950, 82: 148-154. 8 refs. Abstracted in: Biol. Abstr., Balt., 1952, 26: No. 715; Chem. Abstr., 1950, 44: 7951h.

1305
Kibrick, E. A., Becks, H., Marx, W. and Evans, H. M. THE EFFECT OF DIFFERENT DOSE LEVELS OF GROWTH HORMONE ON THE TIBIA OF YOUNG HYPOPHYSECTOMIZED FEMALE RATS. Growth, Ithaca, 1941, 5: 437-447. 14 refs. Abstracted in: Chem. Abstr., 1942, 36: 3244[7]; Biol. Abstr., Balt., 1942, 16: No. 12121.

1306
Li, C. H., Evans, H. M. and Simpson, M. E. ISOLATION AND PROPERTIES OF THE ANTERIOR HYPOPHYSEAL GROWTH HORMONE. J. Biol. Chem., 1945, 159: 353-366. 26 refs.

1307
Lichtwitz, A., Parlier, R. and Thiéry, G. LE MÉCANISME DE LA CROISSANCE DES OS LONGS. Rev. rhumat., Par., 1953, 20: 256-263. Traces the processes of growth in the epiphyseal cartilage from a series of cells to bone trabeculae. These processes, probably enzymatic, are controlled by hormones. Growth is controlled almost exclusively by somatropin, the growth hormone of the anterior pituitary. Arrested growth depends on the sex hormones. In large doses sex hormones cause symphysis of the epiphyseal cartilage, in weak doses they promote multiplication of pituitary eosinophil cells which produce somatropin. Thus, the same hormone is capable of retarding and promoting growth.

1308
Lucke, H. and Hückel, R. EXPERIMENTELLE UNTERSUCHUNGEN ZUR FRAGE DER WACHSTUMSWIRKUNG VON HYPOPHYSENVORDERLAPPENEXTRAKTEN. Arch. exp. Path., Lpz., 1933, 169: 290-297. 10 refs. Abstracted in: Biol. Abstr., Balt., 1936, 10: No. 16143.

1309
Martin Cazorla, F. APORTACIONES AL ESTUDIO DEL SISTEMA ESQUELÉTICO EN RELACIÓN CON EL SISTEMA INCRETOR ORAL. JUICIO CRÍTICO EN LA PRIMERA MITAD DEL DESARROLLO EMBRIONARIO. Actual. méd., Granada, 1951, 27: 84-93. 8 refs. Abstracted in: Excerpta med., Sect. 1, 1952, 6: No. 88.

1310
Marx, W. and Reinhardt, W. O. LACK OF EFFECT OF GROWTH HORMONE ON DEPOSITION OF RADIOSTRONTIUM IN BONE. Proc. Soc. Exp. Biol., N. Y., 1942, 51: 112-114. 4 refs. Abstracted in: Biol. Abstr., Balt., 1943, 17: No. 8479; Nutrit. Abstr., Aberdeen, 1943-44, 13: No. 2384. In hypophysectomized rats, treated with growth hormone, the deposition of radioactive strontium in femur and mandible was the same as in untreated hypophysectomized rats.

1311
Marx, W., Simpson, M. E. and Evans, H. M. SPECIFICITY OF THE EPIPHYSEAL CARTILAGE TEST FOR THE PITUITARY GROWTH HORMONE. Proc. Soc. Exp. Biol., N. Y., 1944, 55: 250-252. 7 refs. Study of the action of the purified hypophyseal hormones, other than the growth hormone, on the epiphyseal cartilage of the rat.

1312
Quimby, F. H., Bartlett, R. G. and Artress, J. L. EFFECTS OF HORMONE, VITAMIN, AND LIVER SUPPLEMENTS ON THE APPETITE AND GROWTH OF THE YOUNG RAT DURING RECOVERY FROM CHRONIC STARVATION. Am. J. Physiol., 1951, 166: 566-567. 26 refs. Abstracted in: Chem. Abstr., 1952, 46: 174c. "Reduced but continued bone growth occurred during chronic starvation. Althought the growth rate was increased by refeeding, the femur after 60 days recovery did not attain a normal size. None of the treatments in the amounts administered produced any measurable effect on the size of the skeleton. It appears that chronic starvation produces a fundamental irreversible change in the mechanism of bone growth resulting in a degree of permanent skeletal dwarfing."

1313
Ray, R. D., Asling, C. W., Walker, D. G., Simpson, M. E., Li, C. H. and Evans, H. M. GROWTH AND DIFFERENTIATION OF THE SKELETON IN THYROIDECTOMIZED-HYPOPHYSECTOMIZED RATS TREATED WITH THYROXIN, GROWTH HORMONE, AND THE COMBINATION. J. Bone Surg., 1954, 36A: 94-103. 23 refs.

1314
Ray, R. D., Evans, H. M. and Becks, H. THE EFFECT OF GROWTH HORMONE INJECTIONS ON THE COSTOCHONDRAL JUNCTION OF THE RAT RIB. Anat. Rec., 1942, 82: 67-75. 2 pl. 4 refs. Abstracted in: Biol. Abstr., Balt., 1942, 16: No. 12133.

1315
Ray, R. D., Evans, H. M. and Becks, H. EFFECT OF THE PITUITARY GROWTH HORMONE ON THE EPIPHYSEAL DISK OF THE TIBIA OF THE RAT. Am. J. Path., 1941, 17: 509-528. 3 pl. 12 refs. Abstracted in: Biol. Abstr., Balt., 1942, 16: No. 22011.

1316
Ray, R. D., Simpson, M. E., Li, C. H., Asling, C. W. and Evans, H. M. EFFECTS OF THE PITUITARY GROWTH HORMONE AND OF THYROXIN ON GROWTH AND DIFFERENTIATION OF THE SKELETON OF THE RAT THYROIDECTOMIZED AT BIRTH. Am. J. Anat., 1950, 86: 479-516. 24 refs. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 964; Excerpta med., Sect. 3, 1951, 5: No. 767. The effects of growth hormone and thyroxin injections in rats thyroparathyroidectomized at birth were studied with regard to body length, body weight, and skeletal maturation as measured roentgenographically, chemically, and histologically.

1317
Ribeiro do Valle, J. SÔBRE A INFLUÊNCIA DO LÔBO ANTERIOR DA HIPÓFISE NO PROCESSO DE OSSIFICAÇÃO ENDOCONDRAL. Rev. brasil. biol., 1944, 4: 13-26. 16 refs. English summary. Abstracted in: Chem. Abstr., 1944, 38: 63526.

1318
Ross, E. S. and McLean, F. C. THE INFLUENCE OF THE GROWTH-PROMOTING HORMONE OF THE ANTERIOR LOBE OF THE PITUITARY UPON GROWTH ACTIVITY IN THE LONG BONES OF THE RAT. Endocrinology, 1940, 27: 329-339. pl. 14 refs. Abstracted in: Biol. Abstr., Balt., 1941, 15: No. 360; Chem. Abstr., 1940, 34: 6994[1].

1319
Sammartino, R. ESTUDIO HISTOLOGICO DEL PROCESO DE OSIFICACION EN ANIMALES HIPOFISOPRIVOS. 79p. Buenos Aires, A. López, 1938. (Tesis de Profesorado). 8 refs.

HORMONAL INFLUENCE - PITUITARY (Continued)

1320
Shepanek, L. A. THE EFFECT OF ENDOCRINE SUBSTANCES (ACTH AND GROWTH HORMONE) ON EXPERIMENTAL FRACTURE. Surg. Gyn. Obst., 1953, 96: 200-204. 4 refs. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 16395; Excerpta med., Sect. 9, 1954, 8: No. 2151.

1321
Silberberg, M. EFFECT OF CATTLE ANTERIOR PITUITARY EXTRACT ON BONE AND CARTILAGE OF THE JOINT (ACROMEGALIC ARTHROPATHIA). Proc. Soc. Exp. Biol., N. Y., 1936, 34: 333-334. 3 refs. Abstracted in: Biol. Abstr., Balt., 1937, 11: No. 11439; Chem. Abstr., 1936, 30: 8324[1].

1322
Silberberg, M. EFFECTS OF EXTRACT OF CATTLE ANTERIOR PITUITARY GLAND ON ENDOCHONDRAL OSSIFICATION IN YOUNG GUINEA PIGS. Proc. Soc. Exp. Biol., N. Y., 1935, 32: 1423-1425. 2 refs. Abstracted in: Chem. Abstr., 1936, 30: 3879[8].

1323
Silberberg, M. EFFECTS OF EXTRACT OF CATTLE ANT. PITUITARY ON ENDOCHONDRAL OSSIFICATION IN THYROIDECTOMIZED YOUNG GUINEA PIGS. Proc. Soc. Exp. Biol., N. Y., 1936, 33: 554-558. 11 refs. Abstracted in: Biol. Abstr., Balt., 1937, 11: No. 13601.

1324
Silberberg, M. and Silberberg, R. CHANGES IN THE RIBS OF GUINEA PIGS FOLLOWING ADMINISTRATION OF CATTLE ANTERIOR PITUITARY EXTRACT. Proc. Soc. Exp. Biol., N. Y., 1937, 36: 622-625. 2 refs. Abstracted in: Chem. Abstr., 1937, 31: 7112[3]. The report deals only with the action of anterior pituitary extract on the chondro-osseous junction of the ribs of normal as well as of thyroidectomized guinea pigs.

1325
Silberberg, M. and Silberberg, R. COMBINED EFFECTS OF AN ESTROGEN AND AN ANTERIOR HYPOPHYSIAL EXTRACT ON THE SKELETON OF THE GROWING MOUSE. Arch. Path., Chic., 1945, 39: 381-387. 13 refs. "The two hormones oppose each other in their action on the growth of cartilage, but they cooperate in accelerating the age changes in the latter and in the overproduction of bone, anterior hypophysial hormone by stimulating osteoblastic bone formation and estrogen by promoting hyalinization of the marrow and by inhibiting the resorption of bone. Thus, the two hormones do not neutralize each other but each tends to exert its own effects on the receptor tissue. The skeletal effects of estrogen are direct ones and not mediated by the anterior lobe of the hypophysis."

1326
Silberberg, M. and Silberberg, R. A COMPARISON OF THE EFFECTS OF ANTERIOR PITUITARY HORMONE ON SKELETAL TISSUES OF YOUNG AND MATURE GUINEA PIGS. Am. J. Path., 1939, 15: 547-560. pl. 7 refs. Abstracted in: Biol. Abstr., Balt., 1940, 14: No. 4554.

1327
Silberberg, M. and Silberberg, R. EFFECT OF ACID EXTRACT OF CATTLE ANT. PITUITARY ON BONE REPAIR IN THYROIDECTOMIZED GUINEA PIGS. Proc. Soc. Exp. Biol., N. Y., 1936, 34: 108-110. 3 refs. Abstracted in: Biol. Abstr., Balt., 1937, 11: No. 10930. "Thus anterior pituitary extract of cattle counteracts and overcomes the growth preventing effect on cartilage and bone of young guinea-pigs exerted by thryoidectomy and causes an accelerated healing tendency of the fracture and a faster consolidation of the callus. The extract evidently exerts its influence independently of the thyroid gland. There is under these conditions a parallelism between the process of endochondral ossification in the epiphyseal line and the healing of the fractures by means of a callus."

1328
Silberberg, M. and Silberberg, R. THE EFFECT OF THYROIDECTOMY AND ADMINISTRATION OF ANTERIOR PITUITARY EXTRACT OF CATTLE ON THE GROWTH OF CARTILAGE AND BONE OF IMMATURE QUINEA PIGS. Am. J. Path., 1940, 16: 505-524. 2 pl. 32 refs. Abstracted in: Biol. Abstr., Balt., 1941, 15: No. 2149.

1329
Silberberg, M. and Silberberg, R. EFFECTS OF PROLONGED INJECTIONS OF BOVINE ANTERIOR PITUITARY EXTRACT ON BONE AND CARTILAGE OF GUINEA PIGS. Arch. Path., Chic., 1940, 29: 355-367. 21 refs. Abstracted in: Biol. Abstr., Balt., 1940, 14: No. 11827.

1330
Silberberg, M. and Silberberg, R. EFFECTS OF SYNGENESIOTRANSPLANTS AND OF EXTRACTS OF THE ANTERIOR LOBE OF THE BOVINE HYPOPHYSIS ON THE AGE CHANGES IN THE LONG BONES AND JOINTS OF MICE. Am. J. Path., 1941, 17: 189-210. 3 pl. 22 refs. Abstracted in: Biol. Abstr., Balt., 1941, 15: No. 12311.

1331
Silberberg, M. and Silberberg, R. EFFECTS OF THE "GROWTH HORMONE" OF THE ANTERIOR HYPOPHYSIS (ANTUITRIN G) ON THE SKELETON OF MICE AND GUINEA PIGS. Am. J. Path., 1942, 18: 1141-1157. pl. 25 refs. Abstracted in: Biol. Abstr., Balt., 1943, 17: No. 8488; Chem. Abstr., 1944, 38: 5911[2]. In growing animals antuitrin G induced temporary stimulation of epiphyseal cartilage proliferation, followed by a shortened growth period and premature and accelerated aging. Bone formation and resorption were also stimulated. In adult mice epiphyseal cartilage proliferation did not occur but existing processes were accelerated. It was concluded that the action of alkaline hypophyseal extract upon bone and cartilage was essentially the same as that of the acid extracts of the bovine anterior hypophysis, previously tested.

1332
Silberberg, M. and Silberberg, R. INFLUENCE OF ACID EXTRACT OF CATTLE ANTERIOR PITUITARY GLAND ON BONE REPAIR IN YOUNG GUINEA PIGS. Proc. Soc. Exp. Biol., N. Y., 1936, 33: 177-179. 1 ref. Abstracted in: Biol. Abstr., Balt., 1937, 11: No. 5935.

1333
Silberberg, M. and Silberberg, R. INFLUENCE OF CATTLE ANTERIOR PITUITARY EXTRACT ON ENDOCHONDRAL OSSIFICATION IN YOUNG OVARIECTOMIZED GUINEA PIGS. Proc. Soc. Exp. Biol., N. Y., 1937, 37: 446-450. 4 refs. Abstracted in: Chem. Abstr., 1938, 32: 5461[2].

1334
Simpson, [M. E.] LES FACTEURS HORMONAUX DANS LA CROISSANCE OSSEUSE. Marseille chir., 1951, 3: 448-449. An abstract.

1335
Simpson, M. E., Van Dyke, D. C., Asling, C. W. and Evans, H. M. REGENERATION OF THE CALVARIUM IN YOUNG NORMAL AND GROWTH HORMONE TREATED HYPOPHYSECTOMIZED RATS. Anat. Rec., 1953, 115: 615-625. 3 pl. 3 refs. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 27450; Excerpta med., Sect. 3, 1954, 8: No. 209. After removal of the calvarium of young rats, regeneration was soon complete, bone forming at the cut edges and from islands in the dura. It was noted that removal of the dura with the calvarium was followed by complete lack of bony regeneration which led to the assumption that calvarium bone forms from osteoblasts left in the dura at operation. It was also observed that there was complete lack of bone repair in hypophysectomized rats not treated with growth hormone.

HORMONAL INFLUENCE - PITUITARY (Continued)

1336
Spinelli, A. and Talia, F. IPOFISI E CALLO OSEO (RICERCHE SPERIMENTALI). Arch. radiol., Nap., 1930, 6: 748-762. 5 pl. 28 refs. Abstracted in: Biol. Abstr., Balt., 1933, 7: No. 12950.

1337
Ulrich, F., Copp, D. H., Asling, C. W., Li, C. H. and Reinhardt, W. O. THE EFFECTS OF ACTH ON THE METABOLISM OF RADIOACTIVE CALCIUM IN NORMAL AND HYPOPHYSECTOMIZED RATS. Endocrinology, 1951, 48: 245-248. 7 refs. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 30614; Chem. Abstr., 1953, 47: 1270h.

1338
Ulrich, F., Reinhardt, W. O. and Li, C. H. THE EFFECTS OF HYPOPHYSEAL GROWTH HORMONE ON THE METABOLISM OF CA^{45} IN HYPOPHYSECTOMIZED RATS. Endocrinology, 1951, 49: 213-217. 9 refs. Abstracted in: Biol. Abstr., Balt., 1952, 26: No. 27907; Nutrit. Abstr., Aberdeen, 1951-52, 21: No. 5145. The hormone increased slightly the deposition of Ca^{45} in the bones but had no definite effect on calcium metabolism.

1339
Ulrich, F., Reinhardt, W. O. and Li, C. H. SOME ASPECTS OF THE ROLE OF PITUITARY HORMONES IN CALCIUM METABOLISM. I. ADRENOCORTICOTROPHIC HORMONE. Acta endocr., Kbh., 1952, 10: 97-116. 21 refs. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 3880.

1340
Ulrich, F., Reinhardt, W. O. and Li, C. H. SOME ASPECTS OF THE ROLE OF PITUITARY HORMONES IN CALCIUM METABOLISM. II. GROWTH HORMONE. Acta endocr., Kbh., 1952, 10: 117-127. 4 refs. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 3831; Chem. Abstr., 1954, 48: 2426.

1341
Walker, D. G., Asling, C. W., Simpson, M. E., Li, C. H. and Evans, H. M. STRUCTURAL ALTERATIONS IN RATS HYPOPHYSECTOMIZED AT SIX DAYS OF AGE AND THEIR CORRECTION WITH GROWTH HORMONE. Anat. Rec., 1952, 114: 19-48. 13 refs. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 12774. Skeletal growth was not immediately arrested after operation but showed retardation and lack of further differentiation after three weeks. Treatment with growth hormone restored growth but no further maturation was observed. Other organs and tissues were also studied.

1342
Walker, D. G., Simpson, M. E., Asling, C. W. and Evans, H. M. GROWTH AND DIFFERENTIATION IN THE RAT FOLLOWING HYPOPHYSECTOMY AT 6 DAYS OF AGE. Anat. Rec., 1950, 106: 539-554. 11 refs. "Skeletal growth of H28 rats was reduced to a very slow rate immediately after operation, whereas skeletal growth of H6 rats continued for three weeks at a rate of 60% of normal... then continued at a very slow rate. Differentiation or maturation of the skeleton did not cease abruptly in either group..."

1343
Weisschedel, E. DIE MANGELHAFTE LEISTUNG VERSCHIEDENER INKRETORISCHER ORGANE UND DIE HEILUNG VON KNOCHENBRÜCHEN. Arch. klin. Chir., 1951, 267: 187-188.

1344
Wolbach, S. B. and Maddock, C. L. VITAMIN-A ACCELERATION OF BONE GROWTH SEQUENCES IN HYPOPHYSECTOMIZED RATS. A.M.A. Arch. Path., 1952, 53: 273-278. Abstracted in: Biol. Abstr., Balt., 1952, 26: No. 20661; Nutrit. Abstr., Aberdeen, 1952, 22: No. 1825. "We conclude that the skeletal responses to excessive vitamin A administration are not mediated through the pituitary gland."

See:

440	778	779	780	832
833	849	1158	1251	1444
1472	1474	1493	1526	1540
2131				

HORMONAL INFLUENCE - SALIVARY GLANDS

see SALIVARY GLANDS - INFLUENCE

HORMONAL INFLUENCE - SEX HORMONES

1345
Amante, S. and Bidone, E. AZIONE DEL DIPROPIONATO DI ANDROSTENDIOLO SULLA FORMAZIONE DEL CALLO NELLE FRATTURE SPERIMENTALI. Minerva chir., Tor., 1950, 5: 779-784. 22 refs. Abstracted in: Excerpta med., Sect. 5, 1951, 4: No. 3071.

1346
Armstrong, W. D., Knowlton, M. and Gouze, M. INFLUENCE OF ESTRADIOL AND TESTOSTERONE PROPIONATES ON SKELETAL ATROPHY FROM DISUSE AND ON NORMAL BONES OF MATURE RATS. Endocrinology, 1945, 36: 313-322. 12 refs. Abstracted in: Biol. Abstr., Balt., 1945, 19: No. 21521; Chem. Abstr., 1945, 39: 4129l.

1347
Berezkina, L. F. VLIIANIE POLOVAGO GORMONA NA REGENEROTSIIU KOSTI. [INFLUENCE OF SEX HORMONE ON BONE REGENERATION] Doklady Akad. nauk SSSR, 1948, 59: 147-150. 10 refs. An experimental study on 70 2-month-old rats (40 males and 30 females). All rats were subjected to fracture of leg and given testosterone propionate or estrone injection in oil solution. It was found excess of hormone stimulates the knitting process of fracture only when testosterone is given to males and estrone to females. Injection of estrone in males has no influence on bone regeneration.

1348
Bloom, M. A., Bloom, W. and McLean, F. C. THE ROLE OF ANDROGEN IN THE PRODUCTION OF MEDULLARY BONE IN PIGEONS BY THE ADMINISTRATION OF SEX HORMONES. Am. J. Physiol., 1941, 133: P216. An abstract.

1349
Buchwald, K. W. and Hudson, L. THE BIOCHEMICAL EFFECTS OF INJECTIONS OF SEX HORMONES INTO HYPOPHYSECTOMIZED RATS. Endocrinology, 1947, 41: 111-118. 13 refs. Abstracted in: Biol. Abstr., Balt., 1948, 22: No. 8711; Excerpta med., Sect. 3, 1948, 2: No. 822.

1350
Budy, A. M., Urist, M. R. and McLean, F. C. THE EFFECT OF ESTROGENS ON THE GROWTH APPARATUS OF THE BONES OF IMMATURE RATS. Am. J. Path., 1952, 28: 1143-1167. 6 pl. 19 refs. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 9659; Chem. Abstr., 1953, 47: 5522e. The only effect of moderate doses of estrogen upon the bones of rats is interference with resorption of the spongy bone in the metaphysis. Testosterone propionate given alone or with estrogen produced no reaction.

HORMONAL INFLUFNCE - SEX HORMONES (Continued)

1351
Common, R. H., Rutledge, W. A. and Hale, R. W. OBSERVATIONS ON THE MINERAL METABOLISM OF THE PULLETS. VIII. THE INFLUENCE OF GONADAL HORMONES ON RETENTION OF CALCIUM AND PHOSPHORUS. J. Agr. Sc., Lond., 1948, 38: 64-80. 4 pl. 50 refs. Androgen and oestrogen together produced retention of Ca and P as if the birds were coming into lay. With increased retention there was not an increase in mechanical strength of long bones. Though ossification in bone marrow of the tibiae was apparent, the epiphyses were frequently looser than in birds receiving only one hormone or none. Fat-free long bones were less compact in spite of an increased rate of storage of calcium and phosphorus in the birds.

1352
Gardner, W. U. INFLUENCES OF SEX HORMONES ON BONE. RECENT RESEARCH ON OSSEOUS TISSUE. Yale Sc. Mag., 1945, 20: No. 3, 7-8, 24, 26, 28. 11 refs. Abstracted in: Biol. Abstr., Balt., 1946, 20: No. 10045. A review of the effects of estrogen, the steroid hormones and testerone on the bones of guinea pigs and mice. Estrogen induces medullary bone growth in mice.

1353
Gardner, W. U. MODIFICATIONS OF BONES OF ANIMALS RECEIVING SEX HORMONES. Anat. Rec., 1940, 76: Suppl., 22-23. An abstract.

1354
Gardner, W. U. and Pfeiffer, C. A. INFLUENCE OF ESTROGENS AND ANDROGENS ON THE SKELETAL SYSTEM. Physiol. Rev., 1943, 23: 139-165. 226 refs. Abstracted in: Chem. Abstr., 1943, 37: 3813[3]; Biol. Abstr., Balt., 1944, 18: No. 4435.

1355
Gardner, W. U. and Pfeiffer, C. A. INHIBITION OF ESTROGENIC EFFECTS ON THE SKELETON BY TESTOSTERONE. Proc. Soc. Exp. Biol., N. Y., 1938, 38: 599-602. Abstracted in: Biol. Abstr., Balt., 1938, 12: No. 6421. "Testosterone propionate inhibits the skeletal changes (pubic resorption and hypercalcification of the skeleton) which occur when estrogens are injected over extended periods."

1356
Gardner, W. U. and Pfeiffer, C. A. SEX HORMONES AND BONE CHANGES IN MICE. Anat. Rec., 1939, 73: Suppl. No. 2, 21. An abstract.

1357
*Godfrey, E. F. and Jaap, R. G. SOME EFFECTS OF SEX HORMONES ON BONE DEVELOPMENT AND GROWTH IN CHICKENS. Poultry Sc., 1951, 30: 915. An abstract.

1358
Lichtwitz, A., Parlier, R. and Thiéry, G. CROISSANCE ET HORMONES GÉNITALES. Rev. rhumat., Par., 1953, 20: 165-178. Experiments with young rats showed that small doses of the sex hormones, particularly folliculine, induced obvious and invariable changes in epiphyseal cartilage growth after 7 days, characterized by multiplication of cells of the seried cartilage and the hypertrophic cartilage and lengthening of the bone trabeculae.

1359
Lichtwitz, A., Parlier, R., Thiéry, G. and Delaville, M. MÉCANISME DE L'ACTION DES HORMONES GÉNITALES SUR LE CARTILAGE DE CONJUGAISON. Sem. hôp., Par., 1951, 27: 260-265. Translation in: Prensa méd. argent., 1951, 38: 1409-1414.

1360
Lichtwitz, A., Thiéry, G., Parlier, R. and Delaville, M. LES HORMONES GÉNITALES ET LE CARTILAGE DE CONJUGAISON. Sem. hôp., Par., 1951, 27: 247-260. Translation in: Prensa méd. argent., 1951, 38: 1339-1351.

1361
Norman, G. F. and Mittler, A. INTERRELATIONSHIP OF VITAMIN D AND THE SEX HORMONES IN CALCIUM AND PHOSPHORUS METABOLISM OF RATS. Proc. Soc. Exp. Biol., N. Y., 1948, 67: 104-111. 22 refs. Abstracted in: Biol. Abstr., Balt., 1948, 22: No. 18003; Nutrit. Abstr., Aberdeen, 1948-49, 18: No. 390.

1362
Reifenstein, E. C., Jr. and Albright, F. THE METABOLIC EFFECTS OF STEROID HORMONES IN OSTEOPOROSIS. J. Clin. Invest., 1947, 26: 24-56. 26 refs. Abstracted in: Chem. Abstr., 1949, 43: 5487[i].

1363
Wentworth, J. H., Smith, P. K. and Gardner, W. U. THE COMPOSITION OF BONES OF MICE RECEIVING ESTROGENS AND ANDROGENS. Endocrinology, 1940, 26: 61-67. 13 refs. Abstracted in: Biol. Abstr., Balt., 1941, 15: No. 2163; Chem. Abstr., 1940, 34: 13724.

See:

440 1307

HORMONAL INFLUENCE - SEX HORMONES, FEMALE

see also HORMONAL INFLUENCE - SEX HORMONES

1364
Baker, B. L. and Leek, J. H. THE RELATIONSHIP OF THE PARATHYROID GLANDS TO THE ACTION OF ESTROGEN ON BONE. Am. J. Physiol., 1946, 147: 522-526. 13 refs. "Study of the tibias of parathyroidectomized and intack rats treated with large doses of alpha-estradiol dipropionate showed that 'hyperossification' could be induced in the absence of the parathyroid glands. It was concluded that even though the hypophysis is essential to this phenomenon, the parathyroids are unnecessary and, therefore, the secretion of a parathyrotrophic factor by the hypophysis need not be postulated."

1365
Baldini, J. T. and Zarrow, M. X. ESTROGEN AND SERUM CALCIUM LEVELS IN THE BOB WHITE QUAIL. Poultry Sc., 1952, 31: 800-804. 18 refs. "Treatment with estrogens increases the serum calcium to values as high as 140 mg. percent. In the starved bird estrogen is still able to produce a hypercalcemia indicating an action on the skeletal calcium as well as absorption through the gastrointestinal tract."

1366
Barnicot, N. A. THE LOCAL ACTION OF CALCIFEROL AND OESTRADIOL ON BONE. J. Anat., Lond., 1951, 85: 120-134. 42 refs. Small calciferol pellets attached to pieces of mouse parietal bone were grafted intracerebrally to litter mates and a diffuse local resorption was observed after 14 days. This was accompanied by osteoclasts and some new bone resorption. Similar experiments with estradiol showed no local action.

HORMONAL INFLUENCE - SEX HORMONES, FEMALE
(Continued)

1367
Barnicot, N. A. LOCAL ACTION OF CALCIFEROL AND VITAMIN A ON BONE. Nature, Lond., 1948, 162: 848-849. 6 refs. Abstracted in: Biol. Abstr., Balt., 1949, 23: No. 28545. Calciferol, vitamin A acetate, cholesterol or estradiol was attached to small pieces of parietal bone from 10-day-old mice and the combination inserted vertically into the cerebral hemisphere of litter mates. Subsequent examination showed marked resorption in the calciferol and vitamin A grafts but no change in the cholesterol nor estradiol grafts.

1368
Bauer, W. H. EFFECT OF ESTRONE ON TOOTH BUDS AND BONES IN GROWING DOGS. J. Am. Coll. Dentists, 1945, 12: 192-201. 4 pl. 11 refs.

1369
Benoit, J. ACTION DE LA FOLLICULINE SUR LE MÉTABOLISME DU CALCIUM CHEZ LES OISEAUX EN RÉGIME NORMAL ET EN RÉGIME ACALCIQUE. Bull. Acad. med., Par., 1942, 126: 464-465. 2 refs.

1370
Benoit, J. and Clavert, J. ACTION DE LA THYROÏDECTOMIE SUR L'OSSIFICATION FOLLICULINIQUE CHEZ LE CANARD. C. rend. Soc. biol., 1947, 141: 1256-1257. Abstracted in: Chem. Abstr., 1948, 42: 7853c.

1371
Benoit, J. and Clavert, J. ACTION OSTÉOGÉNÉTIQUE DIRECTE ET LOCALE DE LA FOLLICULINE, DEMONTRÉE, CHEZ LE CANARD ET LE PIGEON, PAR SON INTRODUCTION LOCALISÉE DANS UN OS LONG. C. rend. Soc. biol., (1943) 1945, 139: 728-730. 1 ref.

1372
Benoit, J and Clavert, J. ÉTUDE HISTOLOGIQUE DE L'OSSIFICATION FOLLICULINIQUE CHEZ LES OISEAUX. Bull. histol. appl., Lyon, 1943, 20: 25-42. 4 pl. 15 refs.

1373
Benoit, J. and Clavert, J. HYPERCALCÉMIE ET OSTÉOGENÈSE MÉDULLAIRE FOLLICULINIQUES CHEZ LE CANARD DOMESTIQUE SOUMIS À UN RÉGIME ACALCIQUE. C. rend. Soc. biol., (1944) 1945, 139: 737-740. 4 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1946-47, 16: No. 778.

1374
Benoit, J. and Clavert, J. OSTEOGÉNÈSE FOLLICULINIQUE CHEZ LES OISEAUX. INFLUENCE DES DIVERSES GLANDES ENDOCRINES. C. rend. Ass. anat., (1950) 1951, 37: 533-535. Birds were injected with the female sex hormone, which induced formation of medullary bone, and the effects of the endocrine glands on the bone formation studied: parathyroidectomy caused lack of mineralization, thyroidectomy caused lack of basic protein substance, hypophysectomy seemed to inhibit thyroid secretion and adrenalectomy had little effect.

1375
Benoit, J. and Clavert, J. RÔLE INDISPENSABLE DES PARATHYROÏDES DANS LA CALCIFICATION DE L'OS FOLLICULINIQUE CHEZ LE CANARD DOMESTIQUE. C. rend. Soc. biol., (1944) 1945, 139: 743-746. 2 refs.

1376
Benoit, J., Cabanes, R., Messerschmitt, J. and Clavert, J. CONTRIBUTION À L'ÉTUDE HISTOLOGIQUE DE L'OSTÉOGÉNÈSE PROVOQUÉE PAR LA FOLLICULINE CHEZ LE CANARD. C. rend. Soc. biol., 1942, 136: 755-756. 1 ref.

1377
Benoit, J., Clavert, J. and Grangaud, R. ACTION DE LA FOLLICULINE SUR LE MÉTABOLISME DU CALCIUM CHEZ LES OISEAUX. I. OSSIFICATION FOLLICULINIQUE. VARIATIONS QUANTITATIVES DES PRINCIPAUX CONSTITUANTS CHIMIQUES DE L'OS PROVOQUÉES CHEZ LE CANARD ET LE PIGEON PAR L'HORMONE SEXUELLE FEMELLE. Tr. Soc. chim. biol., 1942, 24: 1311-1322. 14 refs. Abstracted in: Biol. Abstr., Balt., 1947, 21: No. 24547; Nutrit. Abstr., Aberdeen, 1946-47, 16: No. 1964. In ducks and pigeons histochemical studies have been made of the composition of folliculin-induced medullary bone.

1378
Benoit, J., Grangaud, R. and Messerschmitt, J. ACTION OSTÉOGÉNÉTIQUE ET HYPERCALCÉMIANTE DU BENZOATE D'OESTRADIOL CHEZ LE CANARD DOMESTIQUE MÂLE. ÉTUDE CHIMIQUE. C. rend. Soc. biol., 1941, 135: 1596-1599. 4 refs. Abstracted in: Biol. Abstr., Balt., 1948, 22: No. 23744; Chem. Abstr., 1945, 39: 53047.

1379
Benoit, J., Grangaud, R. and Sarfati, S. MODIFICATIONS OSSEUSES ENTRAINÉES CHEZ LA CANE DOMESTIQUE PAR L'ACTIVATION OVARIENNE, ELLE-MEME DECLENCHÉE PAR L'ÉCLAIREMENT ARTIFICIEL. Bull. histol. appl., Lyon, 1941, 18: 173-184. 4 pl. 6 refs. Abstracted in: Biol. Abstr., Balt., 1942, 16: No. 19607.

1380
Benoit, J., Grangaud, R. and Sarfati, S. MODIFICATIONS SQUELETTIQUES ET SÉRIQUES CONSÉCUTIVES À L'ACTIVATION OVARIENNE DÉCLENCHÉE PAR L'ÉCLAIREMENT ARTIFICIEL CHEZ LA CANE DOMESTIQUE. C. rend. Soc. biol., 1941, 135: 1482-1485. 4 refs. Abstracted in: Chem. Abstr., 1945, 39: 49385.

1381
Benoit, J., Gros, G. and Clavert, J. ACTION DU DIÉTHYLSTILBOESTROL CHEZ LES OISEAUX. SON ACTIVITÉ EN INJECTION. INACTIVITÉ DE FORTES DOSES ADMINISTRÉES PER OS. Bull. Soc. biol. Alger, (1942-1944) 1944, p. 18-19. Abstracted in: Chem. Abstr., 1945, 39: 38229.

1382
Benoit, J., Messerschmitt, J. and Grangaud, R. ACTION OSTÉOGÉNÉTIQUE DU BENZOATE D'OESTRADIOL CHEZ LE CANARD DOMESTIQUE MÂLE. ÉTUDE MORPHOLOGIQUE. C. rend. Soc. biol., 1941, 135: 1593-1596. 4 refs. Abstracted in: Chem. Abstr., 1945, 39: 53047.

1383
Bloom, M. A., Bloom, W., Domm, L. V. and McLean, F. C. CHANGES IN AVIAN BONE DUE TO INJECTED ESTROGEN AND DURING THE REPRODUCTIVE CYCLE. Anat. Rec., 1940, 78: Suppl. p. 143.

1384
Bloom, M. A., McLean, F. C. and Bloom, W. CALCIFICATION AND OSSIFICATION. THE FORMATION OF MEDULLARY BONE IN MALE AND CASTRATE PIGEONS UNDER THE INFLUENCE OF SEX HORMONES. Anat. Rec., 1942, 83: 99-120. 14 refs. Abstracted in: Biol. Abstr., Balt., 1942, 16: No.19886.

1385
Bremer, J. L. THE INFLUENCE OF ESTROGENS ON THE SHAPE OF LONG BONES. J. Bone Surg., 1942, 24: 32-37. 13 refs.

1386
Bremer, J. L. THE PNEUMATIZATION OF THE HUMERUS IN THE COMMON FOWL AND THE ASSOCIATED ACTIVITY OF THEELIN. Anat. Rec., 1940, 77: 197-211. 2 pl. 27 refs. Abstracted in: Biol. Abstr., Balt., 1940, 14: No. 14838.

HORMONAL INFLUENCE - SEX HORMONES, FEMALE
(Continued)

1387
Burrows, H. SEPARATION OF THE PUBIC BONES FOLLOWING THE ADMINISTRATION OF OESTROGENS TO MALE MICE. J. Physiol., Lond., 1935, 85: 159-161. 3 refs. Abstracted in: Biol. Abstr., Balt., 1937, 11: No. 5913.

1388
Camus, J. L. OESTROGÈNES ET OSTÉOGÉNÈSE. Paris méd., 1948, 38: 158-160.

1389
Chambon, Y. and Odier, C. EFFETS COMPARÉS DE L'ADMINISTRATION LOCALE RÉPÉTÉE DE FOLLICULINE ET D'HISTAMINE SUR LA CALCIFICATION CHEZ LE CANARD. C. rend. Soc. biol., 1948, 142: 1520-1522. 4 refs.

1390
Chambon, Y. and Odier, C. EFFETS DE L'ADMINISTRATION LOCALE RÉPÉTÉE DE FOLLICULINE SUR LA CALCIFICATION CHEZ LE CANARD DÉCTECTÉS PAR MICROPHOTOMÉTRIE. C. rend. Soc. biol., 1948, 142: 1516-1519. 4 refs. Abstracted in: Chem. Abstr., 1949, 43: 5471a.

1391
Clavert, J. ACTION HYPERCALCÉMIANTE ET OSTÉOGÉNÉTIQUE DE LA FOLLICULINE CHEZ LE PIGEON; SES VARIATIONS. C. rend. Soc. biol., 1942, 136: 507-509. Abstracted in: Biol. Abstr., Balt., 1949, 23: No. 6645; Chem. Abstr., 1943, 37: 4115[2].

1392
Clavert, J. ACTION OSTÉOGÉNÉTIQUE DE LA FOLLICULINE CHEZ LE PIGEON. C. rend. Soc. biol., 1942, 136: 512-514. 7 refs. Abstracted in: Biol. Abstr., Balt., 1949, 23: No. 6646.

1393
Clavert, J. CONTRIBUTION À L'ÉTUDE DE LA FORMATION DES OEUFS TÉLOLÉCITHIQUES DES OISEAUX. MÉCANISMES DE L'ÉDIFICATION DE LA COQUILLE. Bull. biol. France, 1948, 82: 289-330. 77 refs.

1394
Clavert, J. DISPARITION, PAR L'ARRÊT DES INJECTIONS DE FOLLICULINE, DE L'OS MÉDULLAIRE FORMÉ SOUS L'ACTION DE CETTE HORMONE. C. rend. Soc. biol., 1942, 136: 756-757. 1 ref.

1395
Clavert, J. ÉTUDE HISTOLOGIQUE DE L'INVOLUTION DE L'OS FOLLICULINIQUE DU PIGEON. Arch. anat. micr., Par., 1948, 37: 41-49. 12 refs. Abstracted in: Biol. Abstr., Balt., 1950, 24: No. 824. "Not only does the follicular hormone stimulate the osteoblasts directly and locally when injected into the bone, but such action ceases when the hormone is withdrawn, and the bone already deposited is destroyed. Osteoblasts thus set free from bony matrix revert to a reticulum. The possibility of transformation of osteoblasts into osteoclasts is suggested." - Biol. Abstr.

1396
Clavert, J. MODIFICATIONS COMPARÉES DU SQUELETTE DE QUELQUES FEMELLES D'OISEAUX AU MOMENT DE LA PONTE. Arch. anat., Strasb., 1952, 34: 125-132. 9 refs. Studies of the pigeon, duck and chicken indicate that at the onset of ovarian activity, medullary bone is formed as a mineral reserve for calcification of the eggshell. This reserve is particularly marked in the pigeon and duck and intense osteoclast resorption is noted during shell formation. The chicken has less medullary bone reserve and osteoclastic resorption is less intense during egg laying.

1397
Clavert, J. and Benoit, J. ACTION DE LA FOLLICULINE SUR LE MÉTABOLISME DU CALCIUM CHEZ LES OISEAUX. IV. RÉTENTION DU CALCIUM ALIMENTAIRE DÉTERMINÉE CHEZ LE PIGEON PAR LE DIPROPIONATE D'OESTRADIOL. Tr. Soc. chim. biol., 1942, 24: 1469-1474. 2 refs. Abstracted in: Biol. Abstr., Balt., 1947, 21: No. 24548.

1398
Clavert, J. and Benoit, J. ENRICHISSEMENT DU SQUELETTE EN CALCIUM, CHEZ LE PIGEON, SOUS L'ACTION DU DIPROPIONATE D'OESTRADIOL. C. rend. Soc. biol., 1942, 136: 509-511. Abstracted in: Chem. Abstr., 1943, 37: 4115[2].

1399
Clavert, J. and Benoit, J. ÉTUDE DE LA FORMATION DE L'OS FOLLICULINIQUE CHEZ LE CANARD PRÉHYPOPHYSECTOMISÉ. C. rend. Ass. anat., 1949, 36: 129-134. 4 refs.

1400
Clavert, J., Cabannes, R. and Grangaud, R. ACTION OSTÉOGÉNÉTIQUE DE LA FOLLICULINE CHEZ LA SOURIS. AUGMENTATION DE LA RÉSERVE CALCIQUE SEQUELETTIQUE. C. rend. Soc. biol., 1945, 139: 731-732.

1401
Crepax, P. and Moggian, G. NATURA DEGLI EFFETTI ESERCITATI DALLE SOSTANZE ESTROGENE SUL SISTEMA OSSEO DEL RATTO ALBINO. Boll. Soc. ital. biol. sper., 1952, 28: 1735-1737. 6 refs. Abstracted in: Excerpta med., Sect. 3, 1954, 8: No. 431.

1402
Dallemagne, M. J. and Mélon, J. NATURE CHIMIQUE DE L'OS FOLLICULINIQUE. C. rend. Soc. biol., 1947, 141: 539-541. 8 refs. In pigeons folliculin-induced bone was found to have the calcium-phosphorus ratio, as well as the refractive index, of tracalcium phosphate. It did not contain secondary calcium phosphate.

1403
Dallemagne, M. J., Govaerts, J., and Mélon, J. INFLUENCE DE LA FOLLICULINE SUR LE MÉTABOLISM CALCIQUE DU PIGEON, ÉTUDIÉE À L'AIDE DU RADIOCALCIUM. Arch. internat. physiol., 1950, 58: 157-187. 28 refs. Young adult male and female pigeons were injected with radiocalcium and with folliculine for various periods. The folliculine was observed to have a profound effect upon calcium metabolism throughout the organism. In bone, it was particularly manifested in the femur and least in the humerus.

1404
Dallemagne, M. J., Govaerts, J. and Sue, P. L'ORIGINE DE L'OS FOLLICULINIQUE ÉTUDIÉE À L'AIDE DU RADIOPHOSPHORE COMME INDICATEUR. C. rend. Soc. biol., 1947, 141: 541-543. 1 ref. In pigeons radiophosphorus tracer studies were made to determine the origin of folliculin-induced bone.

1405
Day, H. G. and Follis, R. H., Jr. SKELETAL CHANGES IN RATS RECEIVING ESTRADIOL BENZOATE AS INDICATED BY HISTOLOGICAL STUDIES AND DETERMINATIONS OF BONE ASH, SERUM CALCIUM AND PHOSPHATASE. Endocrinology, 1941, 28: 83-93. 26 refs. Abstracted in: Biol. Abstr., Balt., 1941, 15: No. 8075; Chem. Abstr., 1941, 35: 1491[8]. "The evidence indicates that estrogen causes a decrease in normal destruction of bony trabeculae just beneath the cartilage shaft junction. There is also some increase in osteoblastic activity at the cartilage shaft junction, but not elsewhere. This change in activity increases the density of the epiphyses and apparently accounts for the increase in concentration of ash in the whole bone. However, the total amount of bone is reduced owing to decreased growth in length. The skeletal changes are greater in females than in males." - Chem. Abstr.

HORMONAL INFLUENCE - SEX HORMONES, FEMALE
(Continued)

1406
Dogliotti, V. EFFETTO DELLA CASTRAZIONE SUL CALCIO DELLE OSSA. Ann. ostet. gin., 1934, 56: 443-455. 50 refs. Abstracted in: Biol. Abstr., Balt., 1936, 10: No. 15762. In rabbits the ash and calcium content determined in the metatarsals was slightly lower after oophorectomy than before.

1407
Ely, J. O. and Phillips, R. L. THE EFFECT OF ALPHA ESTRADIOL BENZOATE ON THE SKELETAL DEVELOPMENT OF IMMATURE RATS. Endocrinology, 1940, 27: 661-663. 3 refs. Abstracted in: Biol. Abstr., Balt., 1941, 15: No. 4062. Alpha estradiol benzoate in amounts sufficient to produce marked effects on the uteri and the ovaries and marked involution of the thymus did not increase ash content of bones or influence the ossification centers.

1408
Ettori, J., Grangaud, R., Benoit, J. and Clavert, J. ACTION DE LA FOLLICULINE SUR LE MÉTABOLISME DU CALCIUM CHEZ LES OISEAUX. II. OSSIFICATION FOLLICULINIQUE ET PHÉNOMÈNES DE LA CALCIFICATION PRIMAIRE. Tr. Soc. chim. biol., 1942, 24: 1322-1328. 10 refs. In pigeons the processes of calcification were demonstrated in folliculin-induced medullary bone. The residual calcium-phosphorus ratio indicated that in the process of primary calcification dicalcium phosphate is the first salt deposited. This is transformed into tricalcium phosphate during the processes of secondary calcification.

1409
Gaarenstroom, J. H. and Levie, L. H. DISTURBANCE OF GROWTH BY DIETHYLSTILBOESTROL AND OESTRONE. J. Endocr., Oxf., 1939, 1: 420-429. 2 pl. 22 refs. Abstracted in: Biol. Abstr., Balt., 1940, 14: No. 13155.

1410
Gardner, W. U. THE BREAKING STRENGTH OF FEMURS OF MICE RECEIVING ESTROGENS. Proc. Soc. Exp. Biol., N. Y., 1940, 45: 230-232. 4 refs. Abstracted in: Biol. Abstr., Balt., 1941, 15: No. 4066. "The average breaking-strength of femurs of estrogen-treated mice was 2499 g. or 844 g. greater than that of untreated controls."

1411
Gardner, W. U. FURTHER STUDIES ON THE EFFECTS OF ESTROGEN ON BONE FORMATION IN MICE. Tr. Conf. Metab. Aspects Convalesc., 1946, 12. Conf., 79-104.

1412
Gardner, W. U. INFLUENCE OF SEX AND SEX HORMONES ON THE BREAKING STRENGTH OF BONES OF MICE. Endocrinology, 1943, 32: 149-160. 30 refs. Abstracted in: Biol. Abstr., Balt., 1943, 17: No. 13341.

1413
Gardner, W. U. and Clouet, D. H. INFLUENCE OF ESTROGENS UPON THE BONES OF YOUNG AND OLD MICE AND OF THYROID-DEFICIENT MICE. Anat. Rec., 1945, 91: 275. An abstract.

1414
Gardner, W. U. and Clouet, D. H. OSSEOUS PROLIFERATION IN ESTROGEN-TREATED HYPOPHYSECTOMIZED MICE. Anat. Rec., 1944, 88: 433. An abstract. "The osseous changes in the hypophysectomized mice show that estrogen may act upon the intramedullary bone in as specific a manner as upon the genital tissues."

1415
Gardner, W. U. and Mahan, M. L. OSSEOUS CHANGES IN ESTROGEN-TREATED HYPOTHYROID AND LOW-PROTEIN FED MICE. Anat. Rec., 1946, 94: 462. An abstract. Neither thiourea treatment nor low-protein deit altered the response of bone to estrogen.

1416
Gardner, W. U. and Pfeiffer, C. A. SKELETAL CHANGES IN MICE RECEIVING ESTROGENS. Proc. Soc. Exp. Biol., N. Y., 1938, 37: 678-679. 4 refs. "Endosteal bone nearly or completely replaces the marrow cavities of the femurs of mice which have received estrogen (250 I.U. or more weekly) for long periods. Direct examination of the bones and X-ray photographs show that similar changes occur throughout the skeleton except in the immediate vicinity of the pubic symphysis."

1417
Govaerts, J. and Dallemagne, M. J. INFLUENCE OF FOLLICULIN ON BONE METABOLISM, STUDIED BY MEANS OF RADIOPHOSPHORUS $^{32}_{15}P$. Nature, Lond., 1948, 161: 977. Abstracted in: Nutrit. Abstr., Aberdeen, 1948-49, 18: No. 2193; Chem. Abstr., 1948, 42: 8288[c].

1418
Govaerts, J., Dallemagne, M. J. and Mélon, J. RADIOCALCIUM AS AN INDICATOR IN THE STUDY OF THE ACTION OF ESTRADIOL ON CALCIUM METABOLISM. Endocrinology, 1951, 48: 443-452. 18 refs. Abstracted in: Biol. Abstr., Balt., 1952, 26: No. 27925; Nuclear Sc. Abstr., 1951, 5: No. 3871.

1419
Halvorsen, D. K. EFFECT OF STEROID HORMONES ON DENERVATED EXTREMITIES. Tr. Conf. Metab. Interrelat., 1949, 1.Conf., 172-179. 2 refs.

1420
Koneff, A. A., Simpson, M. E. and Evans, H. M. EFFECTS OF CHRONIC ADMINISTRATION OF DIETHYLSTILBESTROL ON THE PITUITARY AND ENDOCRINE ORGANS OF HAMSTERS. Anat. Rec., 1946, 94: 169-195. pl. 7 refs. Abstracted in: Chem. Abstr., 1948, 42: 5968[a]. "The histological findings ...indicated decreased bone formation, rather than the increased bone formation commonly observed following estrinization in other forms, such as rat, mouse and pigeon."

1421
Landauer, W. YOLK ESTROGEN AND HUMERUS PNEUMATIZATION IN CHICKS. Endocrinology, 1944, 34: 297-299. 3 refs. Following removal of the yolk sac pneumatization was present in the humerus. This finding seems to disprove Bremer's view that pneumatization of the humerus is under the control of yolk estrogen.

1422
Landauer, W. and Zondek, B. OBSERVATIONS ON THE STRUCTURE OF BONE IN ESTROGEN-TREATED COCKS AND DRAKES. Am. J. Path., 1944, 20: 179-204. 6 pl. 53 refs. Abstracted in: Biol. Abstr., Balt., 1944, 18: No. 8376; Nutrit. Abstr., Aberdeen, 1944-45, 14: No. 375.

1423
Landauer, W., Pfeiffer, C. A., Gardner, W. U. and Man, E. B. HYPERCALCIFICATION, -CALCEMIA AND -LIPEMIA IN CHICKENS FOLLOWING ADMINISTRATION OF ESTROGENS. Proc. Soc. Exp. Biol., N. Y., 1939, 41: 80-82. 9 refs.

1424
Landauer, W., Pfeiffer, C. A., Gardner, W. U. and Shaw, J. C. BLOOD SERUM AND SKELETAL CHANGES IN TWO BREEDS OF DUCKS RECEIVING ESTROGENS. Endocrinology, 1941, 28: 458-464. 19 refs.

1425
Lippmann, E. and Dachà, U. COMPORTAMENTO DELLE OSSA SOTTO L'AZIONE DELLA FOLLICOLINA. I. VARIAZIONI DEL PESO. Boll. Soc. ital. biol. sper., 1936, 11: 79-81. Abstracted in: Chem. Abstr., 1936, 30: 6052[2]; Nutrit. Abstr., Aberdeen, 1937-38, 7: No. 623.

HORMONAL INFLUENCE - SEX HORMONES, FEMALE
(Continued)

1426
Lippmann, E. and Dachâ, U. COMPORTAMENTO DELLE OSSA SOTTO L'AZIONE DELLA FOLLICOLINA. II. CONTENUTO IN CALCIO. Boll. Soc. ital. biol. sper., 1936, 11: 81-82. Abstracted in: Chem. Abstr., 1936, 30: 6052[2]; Nutrit. Abstr., Aberdeen, 1937-38, 7: No. 623.

1427
Lippman, H. N. and Saunders, J. B. de C. M. THE NATURE OF THE HYPEROSSIFICATION OBSERVED IN THE LONG BONES OF RATS TREATED WITH EXCESSIVE DOSES OF ESTRADIOL BENZOATE. J. Endocr., Oxf., 1944, 3: 370-383. 27 refs. Abstracted in: Chem. Abstr., 1944, 38: 6354[4]; Nutrit. Abstr., Aberdeen, 1944-45, 14: No. 1387. The experiments investigate and correlate the chemical changes with the histological changes occuring in bone after long-continued administrating of oestrogens.

1428
McKeown, R. M., Harvey, S. C. and Lumsden, R. W. BREAKING STRENGTH OF HEALING FRACTURED FIBULAE OF RATS. VI. OBSERVATIONS ON THE INFLUENCE OF BILATERAL OVARIECTOMY. Arch. Surg., 1933, 26: 430-442. 13 refs. Abstracted in: Biol. Abstr., Balt., 1934, 8: No. 16555; Chem. Abstr., 1933, 27: 2485.

1429
Macola, B. A. INFLUENCIA DE LA ADMINISTRACIÓN PROLONGADA DE ESTRONA SOBRE LA COMPOSICIÓN QUÍMICA DEL HUESO. Rev. Soc. argent. biol., 1937, 13: 105-111. 12 refs. Abstracted in: Chem. Abstr., 1937, 31: 7525[9].

1430
Merlino, A. OSTEOGENESIS, ORMONE OVARICO E VITAMINA DELLA FECONDITA. Lattante, 1935, 6: 469-494. 7 pl. 65 refs.

1431
Pfeiffer, C. A. and Gardner, W. U. SKELETAL CHANGES AND BLOOD SERUM CALCIUM LEVEL IN PIGEONS RECEIVING ESTROGENS. Endocrinology, 1938, 23: 485-491. 13 refs. Abstracted in: Biol. Abstr., Balt., 1939, 13: No. 3883; Chem. Abstr., 1938, 32: 9228[7].

1432
Pfeiffer, C. A., Kirschbaum, A. and Gardner, W. U. RELATION OF ESTROGENS TO OSSIFICATION AND THE LEVELS OF SERUM CALCIUM AND LIPOID IN THE ENGLISH SPARROW, PASSER DOMESTICUS. Yale J. Biol., 1940, 13: 279-284. pl. 8 refs. Abstracted in: Chem. Abstr., 1941, 35: 1108[2]; Biol. Abstr., Balt., 1941, 15: No. 8098.

1433
Riddle, O. and Rauch, V. M. ACTION OF ESTROGEN ON PLASMA CALCIUM AND ENDOSTEAL BONE FORMATION IN PARATHYROIDECTOMIZED PIGEONS. Endocrinology, 1944, 35: 209. An abstract.

1434
Riddle, O., Rauch, V. M. and Smith, G. C. ACTION OF ESTROGEN ON PLASMA CALCIUM AND ENDOSTEAL BONE FORMATION IN PARATHYROIDECTOMIZED PIGEONS. Endocrinology, 1945, 36: 41-47. 24 refs. Abstracted in: Chem. Abstr., 1945, 39: 969[2].

1435
Riddle, O., Rauch, V. M. and Smith, G. C. CHANGES IN MEDULLARY BONE DURING THE REPRODUCTIVE CYCLE OF FEMALE PIGEONS. Anat. Rec., 1944, 90: 295-305. 11 refs.

1436
Ruiz-Gijón, J. LA ACCIÓN DEL DIPROPIONATO DE ESTILBENO SOBRE EL HUESO Y OTROS ÓRGANOS. Farm. y ter., Madr., 1943, 4: 405-413. 20 refs.

1437
Sabaino, D. and Conti, T. DIETA, ESTROGENI E FRATTURA DELLE OSSA. Arch. sc. med., Tor., 1953, 95: 445-447. 3 refs. Two groups of rats were fed different diets containing casein with stilbestrol and wheat germ with stilbestrol, respectively. It was observed that large doses of stilbestrol reduced the fracture resistance of the long bones in the animals fed casein much more than in the animals fed wheat germ. But it was also observed that there was a greater reduction of the Ca and P content of the bones of the animals on the wheat germ diet than of those on the casein diet.

1438
Salomon, K., Gabrio, B. W., Reinhard, E. and Silberberg, R. EFFECTS OF ESTRADIOL BENZOATE AND THEIR MODIFICATION BY BLEEDING. STUDIES ON THE SKELETON AND THE BLOOD CALCIUM OF THE COCKEREL. Arch. Path., Chic., 1947, 43: 76-85. 11 refs. Abstracted in: Biol. Abstr., Balt., 1947, 21: No. 19481; Chem. Abstr., 1947, 41: 5936[d].

1439
Segaloff, A. and Cahill, W. M. ENDOSTEAL BONE DEPOSITION IN FEMURS OF VITAMIN D-DEFICIENT MICE TREATED WITH ESTROGEN. Proc. Soc. Exp. Biol., N. Y., 1943, 54: 162-163. 3 refs. Abstracted in: Biol. Abstr., Balt., 1944, 18: No. 2486. "... vitamin D did not play a major role in the mechanism of endosteal bone deposition in the femurs of mice treated with estrogen."

1440
Silberberg, M. and Silberberg, R. ACTION OF ESTROGEN ON SKELETAL TISSUES OF IMMATURE GUINEA PIGS. Arch. Path., Chic., 1939, 28: 340-360. 12 refs. Abstracted in: Biol. Abstr., Balt., 1940, 14: No. 4555.

1441
Silberberg, M. and Silberberg, R. A COMPARISON OF THE SKELETAL EFFECTS OF ESTROGENIC HORMONE IN VITAMIN C DEPLETED YOUNG AND OLD GUINEA PIGS. Anat. Rec., 1948, 102: 141-159. pl. 7 refs. Abstracted in: Excerpta med., Sect. 5, 1949, 2: No. 3768; Biol. Abstr., Balt., 1949, 23: No. 14787. "In young adult and old guinea pigs, administration of estrogen counteracts the skeletal effects of vitamin C deficiency primarily by inhibition of bone resorption."

1442
Silberberg, M. and Silberberg, R. THE DIFFERENCE IN THE RESPONSE OF SKELETAL TISSUES TO ESTROGEN IN MICE OF VARIOUS AGES. Anat. Rec., 1941, 80: 347-371. 2 pl. 5 refs. Abstracted in: Biol. Abstr., Balt., 1941, 15: No. 23491.

1443
Silberberg, M. and Silberberg, R. EFFECT OF PROGESTERONE ON GROWING CARTILAGE AND BONE IN IMMATURE GUINEA PIGS. Arch. Path., Chic., 1941, 31: 85-92. 7 refs. Abstracted in: Biol. Abstr., Balt., 1941, 15: No. 10397.

1444
Silberberg, M. and Silberberg, R. EFFECTS OF OVARIECTOMY AND LONG CONTINUED ADMINISTRATION OF ANTERIOR PITUITARY EXTRACT OF CATTLE ON SKELETAL TISSUES OF IMMATURE GUINEA PIGS. Am. J. Path., 1940, 16: 491-503. 3 pl. 15 refs. Abstracted in: Biol. Abstr., Balt., 1941, 15: No. 2148.

1445
Silberberg, M. and Silberberg, R. FURTHER INVESTIGATIONS CONCERNING THE INFLUENCE OF ESTROGEN ON SKELETAL TISSUES. Am. J. Anat., 1941, 69: 295-331. 3 pl. 26 refs. Abstracted in: Biol. Abstr., Balt., 1942, 16: No. 6752.

HORMONAL INFLUENCE - SEX HORMONES, FEMALE
(Continued)

1446
Silberberg, M. and Silberberg, R. SKELETAL EFFECTS OF ESTROGENIC HORMONE IN GROWING VITAMIN C-DEPLETED GUINEA PIGS. Am. J. Path., 1948, 24: 1019-1037. 3 pl. 14 refs. Abstracted in: Biol. Abstr., Balt., 1949, 23: No. 6663; Excerpta med., Sect. 3, 1949, 3: No. 1200.

1447
Simpson, M. E., Kibrick, E. A., Becks, H. and Evans, H. M. EFFECT OF CRYSTALLINE ESTRIN IMPLANTS ON THE PROXIMAL TIBIA AND COSTO-CHONDRAL JUNCTION OF YOUNG FEMALE RATS. Endocrinology, 1942, 30: 286-294. 14 refs. Abstracted in: Biol. Abstr., 1942, 16: No. 12202; Chem. Abstr., 1942, 36: 1996[6].

1448
Sős, J., Lichner, G. and Ats, M. DIE WIRKUNG DES D-VITAMINMANGELS UND DER OESTROGENEN STOFFE AUF DEN CA- UND P-GEHALT DER KNOCHEN. Arch. exp. Path., Lpz., 1941, 197: 271-274. 12 refs. Abstracted in: Biol. Abstr., Balt., 1943, 17: No. 4951; Chem. Abstr., 1942, 36: 5874[1].

1449
Sutro, C. J. EFFECTS OF SUBCUTANEOUS INJECTION OF ESTROGEN UPON SKELETON IN IMMATURE MICE. Proc. Soc. Exp. Biol., N. Y., 1940, 44: 151-154. Abstracted in: Biol. Abstr., Balt., 1940, 14: No. 15955; Chem. Abstr., 1940, 34: 5507[4].

1450
Sutro, C. J. and Pomerantz, L. CHANGES IN OSSEOUS TISSUES OF YOUNG DOGS AFTER PROLONGED ADMINISTRATION OF ESTRADIOL BENZOATE. Arch. Path., Chic., 1942, 33: 305-311. 5 refs. Abstracted in: Chem. Abstr., 1942, 36: 4873[2].

1451
Talbot, N. B. THE EFFECT OF ESTROGEN ON THE SKELETAL AGE OF IMMATURE RATS. Endocrinology, 1939, 25: 325-327. 5 refs. "Estradiol administered to immature rats for 7-9 days after birth causes a significant advance in the skeletal age of the females, but not of the males."

1452
Talmage, R. V. HISTOLOGICAL EFFECTS OF ESTRADIOL, PROGESTERONE, AND RELAXIN ON THE SYMPHYSIS PUBIS OF THE GUINEA PIG. Anat. Rec., 1946, 96: 528. An abstract.

1453
Urist, M. R., Budy, A. M. and McLean, F. C. ENDOSTEAL-BONE FORMATION IN ESTROGEN-TREATED MICE. J. Bone Surg., 1950, 32A: 143-162. 32 refs. Abstracted in: Biol. Abstr., Balt., 1950, 24: No. 23127; Excerpta med., Sect. 9, 1950, 4: No. 4512.

1454
*Urist, M. R., Budy, A. M. and McLean, F. C. FACTORS INFLUENCING THE REACTION OF THE MAMMALIAN SKELETON TO ESTROGENS. Tr. Conf. Metab. Aspects Convalesc., 1948, 17.meet., 79-105. Abstracted in: Chem. Abstr., 1949, 43: 8040[e].

1455
Urist, M. R., Budy, A. M. and McLean, F. C. SPECIES DIFFERENCES IN THE REACTION OF THE MAMMALIAN SKELETON TO ESTROGENS. Proc. Soc. Exp. Biol., N. Y., 1948, 68: 324-326. 8 refs. Abstracted in: Biol. Abstr., Balt., 1949, 23: No. 3940; Chem. Abstr., 1948, 42: 8003a

1456
Wolterink, L. F., Cornwall, R. L., Vinson, C. and Cole, L. L. EFFECT OF HORMONES ON CALCIUM[45] ACCUMULATION IN VARIOUS TISSUES. Fed. Proc., Balt., 1953, 12: 158. An abstract. The femur was among the organs studied.

See:

4 349 640 917 1325
1343 1495 1496 1497 1516
1533

HORMONAL INFLUENCE - SEX HORMONES, MALE

see also HORMONAL INFLUENCE - SEX HORMONES

1457
Bergstrand, C. G. THE INFLUENCE OF TESTOSTERONE PROPIONATE ON SKELETAL DEVELOPMENT IN THE IMMATURE RABBIT. Acta endocr., Kbh., 1950, 4: 91-101. 27 refs. Abstracted in: Excerpta med., Sect. 3, 1950, 4: No. 1836.

1458
Calef, C. INFLUENZA DELL'ESTRATTO PROSTATICO SUL CONTENUTO DEL CALCIO E DEL FOSFORO NEL SANGUE E NELLE OSSA. Arch. ital. med. sper., 1939, 4: 145-158. 48 refs. Abstracted in: Chem. Abstr., 1939, 33: 8265[7].

1459
Calef, C. L'INFLUENZA DELL'ORMONE PROSTATICO SULLA FORMAZIONE DEL CALLO OSSEO. Policlinico, 1934, 41: sez. chir., 647-678. Approx. 85 refs. Abstracted in: Biol. Abstr., Balt., 1936, 10: No. 3424.

1460
Fox, R. P. and Kochakian, C. D. THE EFFECT OF CASTRATION AND TESTOSTERONE PROPIONATE ADMINISTRATION ON THE PHOSPHORUS METABOLISM OF THE PELVES AND FEMURS OF THE MOUSE AS DETERMINED BY RADIOACTIVE PHOSPHORUS STUDIES. Endocrinology, 1944, 35: 210. An abstract. Also in: Fed. Proc., Balt., 1944, 3: 11.

1461
Gurgian-Cecconi, L. INFLUENZA DEGLI ORMONI SESSUALI MASCHILI SULLA FORMAZIONE DEL CALLO OSSEO. RICERCHE SPERIMENTALI. Minerva chir., Tor., 1951, 6: 663-666. 17 refs.

1462
Hurxthal, L. M. and Hare, H. F. BONE CHANGES IN PRIMARY HYPOGONADISM. Lahey Clin. Bull., 1940, 1: No. 7, 9-12. Observations in 9 cases of primary prepuberal hypogonadism.

1463
Pomerat, G. R. and Coe, R. C. BONE GROWTH IN THE LONG-TERM CASTRATE ALBINO RAT. Endocrinology, 1941, 29: 1015-1016. 12 refs. Abstracted in: Biol. Abstr., Balt., 1942, 16: No. 9427.

1464
Poppe, W. R. ÜBER DIE EINWIRKUNG DER KASTRATION AUF DAS KNOCHENSYSTEM DES KANISCHENS. Kühn-Archiv, 1932, 34: Heft 3, 61-124. 92 refs.

1465
Principe, U. and Bellucci, G. AZIONE DEL PROPIONATO DI TESTOSTERONE INIETTATO IN LOCO SULLA GUARIGIONE DELLE FRATTURE; RICERCHE SPERIMENTALI. Sperimentale, 1952, 102: 266-278. 27 refs. Abstracted in: Brit. Abstr., Sect. AIII, 1953, p. 784. In guinea pigs the favorable effect of testosterone propionate on experimental fracture healing is demonstrated in this histological study.

HORMONAL INFLUENCE - SEX HORMONES, MALE
(Continued)

1466
Reiss, M., Fernandes, J. E. and Golla, Y. M. L. THE PERIPHERAL INHIBITORY INFLUENCE OF LARGE DOSES OF TESTOSTERONE ON EPIPHYSEAL CARTILAGINOUS GROWTH. Endocrinology, 1946, 38: 65-70. 17 refs. Abstracted in: Chem. Abstr., 1946, 40: 3812^{2}. "The daily injection of 4 mgm. testosterone propionate inhibits considerably cartilaginous growth produced by growth hormone, on hypophysectomized rats. The results suggest a peripheral growth inhibitory action of large doses of sex hormone. The bearing of these results on explanations of certain physiologic and pathophysiologic growth phenomena is discussed."

1467
Sainton, P., Simonnet, H. and Petrescu, J. INFLUENCE DE L'HORMONE MÂLE (PROPIONATE DE TESTOSTÉRONE) SUR LE DÉVELOPPEMENT DU RAT IMPUBÈRE. C. rend. Soc. biol., 1938, 128: 698-700. Abstracted in: Chem. Abstr., 1938, 32: 7549^{3}.

1468
Scow, R. O. EFFECT OF TESTOSTERONE ON MUSCLE AND OTHER TISSUES AND ON CARCASS COMPOSITION IN HYPOPHYSECTOMIZED, THYROIDECTOMIZED, AND GONADECTOMIZED MALE RATS. Endocrinology, 1952, 51: 42-51. 22 refs. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 9429; Chem. Abstr., 1953, 47: 1144^{1b}. "Testosterone had no appreciable effect on the weights of thigh muscle, heart, liver and bone, and on the carcass protein percentage in the three operated groups."

1469
Seemann, H. ÜBER DAS VORKOMMEN DES ÖSTRINS IN DEN HODEN UND SEINE WIRKUNG AUF DAS KNOCHENWACHSTUM. Endokrinologie, 1937, 18: 225-234. 20 refs. Abstracted in: Biol. Abstr., Balt., 1938, 12: No. 4767; Chem. Abstr., 1937, 31: 3122^{6}.

1470
Silberberg, M. and Silberberg, R. FURTHER INVESTIGATIONS ON THE EFFECT OF THE MALE SEX HORMONE ON ENDOCHONDRAL OSSIFICATION. Anat. Rec., 1946, 95: 97-117. pl. 10 refs. In mature male and female mice testosterone propionate accelerated aging of the epiphyseal cartilage and castration delayed epiphyseal cartilage development. Small doses of testosterone propionate to castrate animals restored growth and development of the cartilage. The resumption of growth was considered due to the restitution of cartilage development and not to a direct growth-stimulating effect of the hormone.

1471
Silberberg, M. and Silberberg, R. GROWTH AND DEVELOPMENT OF THE LONG BONES OF CASTRATE MICE UNDER THE INFLUENCE OF THYROXINE. Anat. Rec., 1947, 98: 181-191. pl. 9 refs. Abstracted in: Excerpta med., Sect. 3, 1948, 2: No. 1543; Biol. Abstr., Balt., 1948, 22: No. 13677.

1472
Silberberg, M. and Silberberg, R. GROWTH PROCESSES IN CARTILAGE AND BONE SUBSEQUENT TO GONADECTOMY AND ADMINISTRATION OF ANTERIOR PITUITARY EXTRACT OF CATTLE IN IMMATURE MALE AND FEMALE GUINEA PIGS. Am. J. Path., 1939, 15: 55-71. 4 pl. 16 refs. Abstracted in: Biol. Abstr., Balt., 1939, 13: No. 9373.

1473
Silberberg, M. and Silberberg, R. RESPONSE OF CARTILAGE AND BONE OF GROWING MICE TO TESTOSTERONE PROPIONATE. Arch. Path., Chic., 1941, 32: 85-95. 6 refs. Abstracted in: Biol. Abstr., Balt., 1942, 16: No. 6753; Chem. Abstr., 1941, 35: 6296^{4}.

1474
Simpson, M. E., Marx, W., Becks, H. and Evans, H. M. EFFECT OF TESTOSTERONE PROPIONATE ON THE BODY WEIGHT AND SKELETAL SYSTEM OF HYPOPHYSECTOMIZED RATS. SYNERGISM WITH PITUITARY GROWTH HORMONE. Endocrinology, 1944, 35: 309-316. pl. 7 refs. Abstracted in: Biol. Abstr., Balt., 1945, 19: No. 6402; Chem. Abstr., 1945, 39: 739^{2}.

1475
*Tinacci, F. and Agostini, C. L'AZIONE DEL PROPIONATO DI TESTOSTERONE SUL CONTENUTO LIPIDICO DEL TESSUTO CARTILAGINEO IN RELAZIONE AL FENOMENO DELL' OSSIFICAZIONE. Boll. Soc. ital. biol. sper., 1953, 29: 280-282. Abstracted in: Chem. Abstr., 1954, 48: 263^{b}.

1476
Turner, H. H., Lachmann, E. and Hellbaum, A. A. EFFECT OF TESTOSTERONE PROPIONATE ON BONE GROWTH AND SKELETAL MATURATION OF NORMAL AND CASTRATED MALE RATS. Endocrinology, 1941, 29: 425-429. 8 refs. Abstracted in: Biol. Abstr., Balt., 1942, 16: No. 6764; Chem. Abstr., 1941, 35: 7504^{6}.

See:

789 1168

HORMONAL INFLUENCE - THYMUS, SPLEEN AND PINEAL BODY

1477
Asenjo, A. DER EINFLUSS DER THYMUSDRÜSE AUF DIE CALLUSBILDUNG BEI FRAKTUREN. Zbl. Chir., 1937, 64: 2037-2041. 23 refs.

1478
Eskelund, V. and Plum, C. M. EXPERIMENTAL INVESTIGATIONS INTO THE HEALING OF FRACTURES. INFLUENCE OF EXTRACTS OF THYMUS AND OTHER TISSUES. Acta endocr., Kbh., 1953, 12: 171-178. 2 refs. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 29904. Thymic tissue injected intramuscularly in rats accelerated the healing of fractures. Extracts of lymphatic and adrenal tissue were not tested comprehensively enough to draw conclusions. Splenic tissue had no effect.

1479
Ferriani, G. LA DEGENERAZIONE CHERATINICA DELLA GHIANDOLA DELL'UROPIGIO DEL GALLUS DOMESTICUS IN RELAZIONE AL RACHITISMO. Boll. Soc. ital. biol. sper., 1939, 14: 122-123. 3 refs. Experiments on chicks fed a rachitogenic diet indicated a close relationship between rickets and keratinizing degeneration of the preen gland.

1480
Ferriani, G. RICERCHE SPERIMENTALI SUL RAPPORTO FRA GHIANDOLA DELL'UROPIGIO E FENOMENI DI RACHITISMO. Boll. Soc. ital. biol. sper., 1939, 14: 199-200. Further experiments on chicks indicate a relationship between experimental rickets or developmental malformations and degeneration of the preen gland; but this gland has no causative nor curative effects on rickets.

1481
Fiaccavento, W. VARIAZIONI DELL'ATTIVITÀ FOSFATASICA DEL TESSUTO OSSEO IN SEGUITO A TIMECTOMIA. Ormonologia, Tor., 1952, 12: 260-267. 22 refs. Abstracted in: Excerpta med., Sect. 3, 1954, 8: No. 609.

1482
Haas, A. and Hanke, H. THYMUS UND KNOCHENREGENERATION. Deut. Zschr. Chir., 1936, 247: 724-727. 15 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1936-37, 6: No. 5121. "Neither removal of the thymus gland nor injections of thymus extract (thymocrescin) appeared to have any significant effect on the production of callus in rabbits after fracture." - Nutrit. Abstr.

HORMONAL INFLUENCE - THYMUS, SPLEEN AND PINEAL BODY (Continued)

1483
Hanke, H. ÜBER EXPERIMENTELLE OSTEODYSTROPHIA FIBROSA. Frankf. Zschr. Path., 1935, 48: 171-201. 63 refs. In young rats the effects on bone of dextrose, ammonium chloride, lead acetate and thymus extract administered separately or in combination were studied. The resulting lesions, similar to those in osteodystrophia fibrosa, were due to acidosis and suggested that faulty mineral metabolism, rather than hyperparathyroidism might be responsible for this condition.

1484
Marx, J. OSTEODYSTROPHIA ÉS HORMONHATÁS. Orv. hetil., 1935, 79: 1262-1264. 8 refs. Abstracted in: Chem. Abstr., 1936, 30: 1853[8]. "Experiments on guinea pigs with "Thymototal" (of Labopharma at Berlin) and "Perlien" (of Richter at Budapest) proved that not only the secondary thyroid gland but also the thymus and spleen take part in the control of calcium metabolism. An increased calcification caused by an artificial hyperfunction of secondary thyroid could not be prevented by simultaneous administration of thymus and spleen preparations. Curing of osteodystrophy by means of such hormones seems to be unsuccessful." - Chem. Abstr.

1485
Messini, M. and Coppo, M. RICERCHE SUI RAPPORTI FRA ORMONI E VITAMINE. STUDIO SUL MECCANISMO D'AZIONE DELLA VITAMINA ANTIRACHITICA NELL'ORGANISMO COME CONTRIBUTO ALLA CONOSCENZA DELLA FISIOPATOLOGIA DEL TIMO. Arch. Ist. biochim. ital., 1935, 7: 195-232. Approx. 130 refs. Abstracted in: Chem. Abstr., 1935, 29: 7414[9].

1486
Nozawa, H. [ON THE RELATIONSHIP BETWEEN THE SPLEEN FUNCTION AND THE GROWTH OF THE BONE AND THE TOOTH] Tr. Jap. Path. Soc., 1932, 22: 352-357.

1487
Oka, H. [BEITRÄGE ZUM VERHALTEN DER ENDOKRINEN ORGANE BEI KNOCHENFRAKTUR. (II. MITTEILUNG). HISTOLOGISCHE VERÄNDERUNG VON ZIRBEL, PANKREAS, SPEICHELDRÜSE UND HODEN IM VERLAUFE DER FRAKTURHEILUNG] Okayama igakki zassi, 1939, 51: 288-313. 3 pl. 154 refs. German summary, p. 312-313.

1488
Økland, F. THYMUS UND KNOCHENBILDUNG DIE KURLOFF-KORPER ALS MARKIERUNG DER PROSPEKTIVEN KNOCHENZELLEN. Skrifter Norsk. Videnskaps-Akad., Oslo, Mat. Naturv. Kl., 1940, No. 3. 44p. Approx. 166 refs. Abstracted in: Chem. Abstr., 1944, 38: 2379[1]. An extensive review of the literature is followed by descriptions of experiments on guinea pigs to determine the role of the thymus gland and Kurloff bodies in bone formation.

1489
Pflugfelder, O. WIRKUNGEN DER EPIPHYSEKTOMIE AUF DIE POSTEMBRYONALENTWICKLUNG VON LEBISTES RETICULATUS PETERS. Arch. Entwmech., 1953, 146: 115-136. 109 refs. The effect of the removal of the pineal body from newborn guppies (Lebistes reticulatus) is shown by changes in their further development: marked curvature of the spine due to premature involution of chordal tissue and defective ossification (see particularly, p. 121-124); no further increase in weight; increased activity of the thyroid, anterior pituitary and the island cells and Stannius corpuscles of pronephros.

1490
Rossitto, G. "L'AZIONE DELLA TIMECTOMIA IN ANIMALI D'ESPERIMENTO ED IN FASE ACCRESCITIVA." NOTA II[a]. BIOCHIMICA: COMPORTAMENTO DEL CALCIO (CA), MAGNESIO (MG), FOSFORO (P) E DELLA FOSFATASI. Gior. sc. med., Venez., 1951, 6: 123-128. 13 refs. Abstracted in: Chem. Abstr., 1953, 47: 11455[d].

1491
Salier, K. ÜBER DEN EINFLUSS EINSEITIGER ERNÄHRUNG (THYMUSFÜTTERUNG) AUF SKELETTMERKMALE DER RAT. Arch. Entwmech., 1949, 143: 488-514. 10 refs. Abstracted in: Excerpta med., Sect. 1, 1949, 3: No. 1427; Biol. Abstr., Balt., 1950, 24: No. 12137.

See:

1147

HORMONAL INFLUENCE - THYROID

1492
Askanazy, M. and Rutishauser, E. DIE KNOCHEN DER BASEDOWKRANKEN. BEITRAG ZUR LATENTEN OSTEODYSTROPHIA FIBROSA. Virchows Arch., 1933, 291: 653-681. 37 refs.

1493
Asling, C. W., Becks, H., Simpson, M. E. and Evans, H. M. THE EFFECT OF THYROXIN INJECTIONS ON GROWTH AND EPIPHYSEAL CLOSURE OF THE THIRD METACARPAL BONE IN HYPOPHYSECTOMIZED FEMALE RATS. Anat. Rec., 1949, 104: 255-260. 3 refs. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 7786.

1494
Becks, H., Collins, D. A., Asling, C. W., Scow, R. O., Simpson, M. E. and Evans, H. M. GROWTH AND TRANSFORMATION OF THE MANDIBULAR JOINT IN THE RAT. IV. THE EFFECTS OF THYROIDECTOMY AT BIRTH. Oral. Surg., 1948, 1: 315-318. 6 refs.

1495
Benoit, J. and Clavert, J. ACTION DE LA THYROÏDE SUR LE MÉTABOLISME CALCIQUE ET LE TISSU OSSEUX CHEZ LE CANARD DOMESTIQUE. Arch. anat. micr., Par., 1948, 37: 214-229. 30 refs. Abstracted in: Biol. Abstr., Balt., 1950, 24: No. 815; Excerpta med., Sect. 3, 1949, 3: No. 663.

1496
Benoit, J. and Clavert, J. RÔLE DE LA GLANDE THYROÏDE DANS L'OSTÉOGÉNÈSE FOLLICULINIQUE CHEZ LES OISEAUX. C. rend. Ass. anat. (1948) 1949, 35: 68-74. 12 refs. Abstracted in: Bull. Anal. CNRS, 1950, 11: pt. 2, No. 111310. Histologic studies of medullary ossification in thyroidectomized and hyperthyroid ducks indicated that thyroxine clearly favors the formation of bone protein matrix.

1497
Benoit, J. and Clavert, J. RÔLE DE LA THYROÏDE DANS LE MÉCANISME DE L'ACTION HYPERCALCÉMIANTE DE LA FOLLICULINE CHEZ LE CANARD DOMESTIQUE. C. rend. Soc. biol., 1942, 136: 757. Abstracted in: Chem. Abstr., 1945, 39: 3051[7].

1498
Brush, H. V. THE EFFECTS OF THYROXIN AND STILBESTROL ON HEALING OF FRACTURES IN THE RAT. Am. J. Anat., 1945, 76: 339-368. 3 pl. 17 refs. Abstracted in: Biol. Abstr., Balt., 1945, 19: No. 15961; Chem. Abstr., 1947, 41: 1024[c].

HORMONAL INFLUENCE - THYROID (Continued)

1499
Coryn, G. LES AFFECTIONS ENDOCRINIENNES DU SQUELETTE. LA THYROÏDE. Presse méd., 1938, 46: 228-231. 2 refs. Abstracted in: Chem. Abstr., 1938, 32: 5901[9].

1500
Drill, V. A. BONE CALCIUM DURING HYPERTHYROIDISM. Proc. Soc. Exp. Biol., N. Y., 1941, 48: 448-450. 15 refs. "Rats fed 100 mg of thyroid gland per day showed, after 25 days, an average decrease of 2.66% in the calcium content of the ash of fat-free femur. The concomitant loss in body weight of 23%, makes it unlikely that the thyroid feeding per se had a specific effect on bone calcium."

1501
Dziewiatkowski, D. D. EFFECT OF THYROXINE AND THIOURACIL ON S^{35} DEPOSITION IN ARTICULAR CARTILAGE. J. Biol. Chem., 1951, 189: 717-727. 24 refs. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 27320.

1502
Eitel, H. and Lexer, E. W. SCHILDDRÜSENTÄTIGKEIT UND FRAKTURHEILUNG. Arch. klin. Chir., 1936, 185: 587-598. 18 refs.

1503
Falkenheim, M. THE INFLUENCE OF GROWTH ON THE PHOSPHORUS METABOLISM OF THE MOUSE AND THE EFFECT OF THYROXINE AT VARIOUS AGES. Am. J. Physiol., 1942, 138: 175-179. 14 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1943-44, 13: No. 431. "In the growing mouse the rate of phosphorus turnover of the tissues studied is a function of the age of the animal. The decrease in the rate of phosphorus turnover with age is greatest in tibia. ... Thyroxine seems to have very little, if any, effect on the phosphorus turnover of the tissues of the mouse, with the exception of the tibia which in the older mice shows an increase in the P* to P ratio upon the administration of thyroxine."

1504
Follis, R. H., Jr. SKELETAL CHANGES ASSOCIATED WITH HYPERTHYROIDISM. Bull. Johns Hopkins Hosp., 1953, 92: 405-422. 5 pl. 40 refs. Abstracted in: Biol. Abstr., Balt., 1954, 28: No. 860. A histological study of the vertebral bodies from 20 cases of active hyperthyroidism. There was evidence in all of excess destruction in varying degrees. Osteomalacia or osteoporosis were seen in some.

1505
Fontaine, R., Chevallier, A., Klein, M., Mandel, P., Wiest, E., Gries, A. and Vogeleisen, A. ACTION DE LA THYROXINE SUR L'ÉVOLUTION DES FRACTURES EXPÉRIMENTALES CHEZ LE CHIEN. Lyon chir., 1952, 47: 23-36. 18 refs. Abstracted in: Excerpta med., Sect. 9, 1952, 6: No. 7104. In adult dogs the effect of thyroxin on fracture healing is studied radiologically, histologically and biochemically.

1506
Fox, E. and Irving, J. T. THE EFFECT OF THYROID HORMONE ON THE OSSIFICATION OF THE FEMUR IN XENOPUS LAEVIS TADPOLES. S. Afr. J. M. Sc., 1950, 15: 11-14. 10 refs. Abstracted in: Excerpta med., Sect. 3, 1951, 5: No. 366.

1507
Goldféder, A. and Wal-Balacianu, R. INFLUENCE DE L'ADMINISTRATION DE LA THIOURÉE SUR LE MÉTABOLISME DU CALCIUM ET DU PHOSPHORE. Arch. internat. pharm. dyn., Par., 1949, 78: 345-348. 6 refs. Abstracted in: Nutrit. Abstr , Aberdeen, 1949-50, 19: No. 842.

1508
Goldman, H. M. EXPERIMENTAL HYPERTHYROIDISM IN GUINEA PIGS. Am. J. Orthodont., 1943, 29: Oral Surg., 665-681. Abstracted in: Chem. Abstr., 1944, 38: 3351[5]; Biol. Abstr., Balt., 1944, 18: No. 10718.

1509
Hanke, H. EXPERIMENTELLE UNTERSUCHUNGEN ÜBER DEN EINFLUSS DER SCHILDDRÜSE AUF DIE KNOCHENREGENERATION. Deut. Zschr. Chir., 1936, 247: 317-328. 17 refs. "Complete removal of thyroid tissue did not appear to influence the rate of healing of fractures in young rabbits but injection of thyroid extract in normal animals accelerated the formation and improved the quality of callus."

1510
Hanke, H. VITAMIN C UND SCHILDDRÜSE IN IHREN BEZIEHUNGEN ZUR KNOCHENREGENERATION. Klin. Wschr., 1936, 15: 1121-1124. 7 refs. In the vitamin C deficient guinea pig, experimental fractures of bones did not heal. Removal of the thyroid gland had no effect on bone regeneration.

1511
Kozdoba, A. Z. K PROBLEME - ZAZHIVLENIE KOSTNYKH PERELOMOV I VNUTRENNIAIA SEKRETSIIA. SOOBSHCHENIE I. ZAZHIVLENIE KOSTNYKH PERELOMOV PRI EKSPERIMENTAL'NOM NARUSHENII FUNKTSII SHCHITOVIDNOI ZHELEZY. [PROBLEM OF HEALING OF BONE FRACTURES AND INTERNAL SECRETION. FIRST REPORT: HEALING OF BONE FRACTURES IN EXPERIMENTAL FUNCTIONAL DISTURBANCE OF THE THYROID GLAND] Vest. Khir., 1938, 56: 33-42.

1512
Kozdoba, A. Z. and Schtscherbina, I. A. KNOCHENHEILUNG UND SCHILDDRUSE. Mitt. Grenzgeb. Med. Chir., 1935, 44: 78-92. 56 refs. Abstracted in: Chem. Abstr., 1936, 30: 5281[3]; Nutrit. Abstr., Aberdeen, 1935-36, 5: No. 2870.

1513
Layani, F., Mignot, J., Champeau, M. and Aschkenasy, A. LA THYRÉOTOXICOSE EXPÉRIMENTALE CHRONIQUE DU COBAYE. II. LE SYSTÈME OSSEUX. Ann. endocr., Par., 1947, 8: 307-317. 13 refs. Abstracted in: Biol. Abstr., Balt., 1948, 22: No. 16183; Chem. Abstr., 1950, 44: 7443[h].

1514
Leblond, C. P. and Eartly, H. AN ATTEMPT TO PRODUCE COMPLETE THYROXINE DEFICIENCY IN THE RAT. Endocrinology, 1952, 51: 26-41. 23 refs.

1515
Lyon, E. ON THE RELATIONSHIP BETWEEN VITAMIN A METABOLISM AND THYROGENIC OSTEOPOROSIS AND ARTHROSIS. Gastroenterologia, Basel, 1940, 65: 51-62. 35 refs. Abstracted in: Chem. Abstr., 1942, 36: 5216[8].

1516
McDonald, M. R., Riddle, O. and Smith, G. C. ACTION OF THYROXIN ON ESTROGEN-INDUCED CHANGES IN BLOOD CHEMISTRY AND ENDOSTEAL BONE. Endocrinology, 1945, 37: 23-28. 15 refs.

1517
Martin, E. and Curtet, W. THYROÏDE, ARTICULATIONS ET SQUELETTE. Rev. rhumat., Par., 1949, 16: 427-437. 15 refs. English summary. Abstracted in: Excerpta med., Sect. 3, 1950, 4: No. 738.

1518
Martos, J. KNOCHENVERÄNDERUNGEN BEI EXPERIMENTELLEM HYPERTHYREOIDISMUS UND BEI BASEDOW-KRANKHEIT. Beitr. path. Anat., 1938, 100: 293-308. 18 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1938-39, 8: No. 583.

HORMONAL INFLUENCE - THYROID (Continued)

1519

Nielsen, H. THE BONE SYSTEM IN HYPERTHYROIDISM. A CLINICAL AND EXPERIMENTAL STUDY. Acta med. scand., 1952, Suppl. 266, 783-796. 9 refs. Abstracted in: Excerpta med., Sect. 3, 1952, 6: No. 2016; Nutrit. Abstr., Aberdeen, 1953, 23: No. 657.

1520

Noback, C. R., Barnett, J. C. and Kupperman, H. S. THE TIME OF APPEARANCE OF OSSIFICATION CENTRES IN THE RAT AS INFLUENCED BY INJECTIONS OF THYROXIN, THIOURACIL, ESTRADIOL AND TESTOSTERONE PROPIONATE. Anat. Rec., 1949, 103: 49-67. pl. 22 refs. Abstracted in: Excerpta med., Sect. 3, 1950, 4: No. 581; Biol. Abstr., Balt., 1949, 23: No. 26151.

1521

Ogawa, T. and Ohnishi, Y. UEBER DEN EINFLUSS DER SCHILDDRÜSE AUF DAS KNOCHENWACHSTUM BEI B-AVITAMINOSE. Fol. endocr., jap., 1931, 7: 35-36. Abstracted in: Chem. Abstr., 1932, 26: 4365.

1522

Patras, M. C. and Wakerlin, G. E. THYROID THERAPY AND THE SKULL BONE PATTERN OF THYROPARATHYROIDECTOMIZED RATS. Am. J. Physiol., 1940, 131: 129-134. 11 refs. Abstracted in: Chem. Abstr., 1941, 35: 4993; Biol. Abstr., Balt., 1941, 15: No. 12334.

1523

Patras, M. C., Templeton, R. D., Ferguson, R. L. and Hummon, I. F. THE EFFECT OF THYROID AND CALCIUM THERAPY ON THE SKULL BONES OF THYROPARATHYROIDECTOMIZED RATS. Am. J. Physiol., 1941, 133: 617-622. 6 refs. Abstracted in: Biol. Abstr., Balt., 1941, 15: No. 21594; Nutrit. Abstr., Aberdeen, 1941-42, 11: No. 2227.

1524

Principe, U. ALTERAZIONI DELLO SVILUPPO SCHELETRICO IN ANIMALI TIROIDECTOMIZZATI. Arch. "Putti", 1953, 3: 172-179. 35 refs. Young rabbits were thyroidectomized and histological studies made of their femurs at various subsequent intervals. Alterations observed in the epiphyseal cartilages and in the epiphyseo-diaphyseal zone are described. The article is preceded by a review of the literature.

1525

Ray, R. D., Asling, C. W., Simpson, M. E. and Evans, H. M. EFFECTS OF THYROXIN INJECTIONS ON GROWTH AND DIFFERENTIATION OF THE SKELETON OF HYPOPHYSECTOMIZED FEMALE RATS. Anat. Rec., 1950, 107: 253-263. 8 refs. Abstracted in: Excerpta med., Sect. 3, 1951, 5: No. 103. A chemical, histological and roentgenological study.

1526

Scow, R. O., Simpson, M. E., Asling, C. W., Li, C. H. and Evans, H. M. RESPONSE BY THE RAT THYRO-PARATHYROIDECTOMIZED AT BIRTH TO GROWTH HORMONE AND TO THYROXIN GIVEN SEPARATELY OR IN COMBINATION. I. GENERAL GROWTH AND ORGAN CHANGES. Anat. Rec., 1949, 104: 445-463. 7 refs. Abstracted in: Biol. Abstr., Balt., 1950, 24: No. 12385. In untreated controls bone age advanced 3 days (that is, to 18 days), in rats treated with thyroxin alone or with thyroxin and growth hormone bone age advanced to 40 days; in rats receiving growth hormone alone bone age advanced only 3 days.

1527

Severi, A. and Zagnoni, C. IL PROCESSO DI RIPARAZIONE DELLA FRATTURE DURANTE TRATTAMENTO TIOURACILICO. Acta chir. patav., 1949, 5: No. 4, CXXXII-CXL. Abstracted in: Excerpta med., Sect. 1, 1950, 4: No. 1796.

1528

Silberberg, M. and Silberberg, R. CHANGES IN THE SKELETAL TISSUES OF MICE FOLLOWING THE ADMINISTRATION OF THYROXINE. Growth, Ithaca, 1940, 4: 305-314. 9 refs. "In growing mice, administration of thyroxine accelerates first proliferation, then ossification and finally resorption of the epiphyseal cartilage and the cartilage of the joints. Resorptive processes are not only accelerated but also increased and thus lead to a complete epiphyseal-diaphyseal union which does not take place in normal mice of corresponding strains at any age. In general, thyroxine accelerates and intensifies the age changes in the skeleton. ...it also decreases the severity and incidence of certain old age changes which occur in the joints of normal mice."

1529

Silberberg, M. and Silberberg, R. EFFECT OF POTASSIUM IODIDE ON BONE AND CARTILAGE IN THYROIDECTOMIZED IMMATURE GUINEA PIGS. Arch. Path., Chic., 1939, 28: 846-850. 8 refs. Abstracted in: Chem. Abstr., 1940, 34: 10778; Biol. Abstr., Balt., 1940, 14: No. 6425.

1530

Silberberg, M. and Silberberg, R. EFFECTS OF POTASSIUM IODIDE ON THE SKELETAL TISSUES OF GROWING MICE. Am. J. Path., 1944, 20: 329-339. pl. 21 refs. Abstracted in: Chem. Abstr., 1944, 38: 5005[7]; Biol. Abstr., Balt., 1944, 18: No. 10279.

1531

Silberberg, M. and Silberberg, R. THE EFFECTS OF THYROID FEEDING ON GROWTH PROCESSES AND RETROGRESSIVE CHANGES IN BONE AND CARTILAGE OF THE IMMATURE GUINEA PIG. Growth, Ithaca, 1938, 2: 327-333. 22 refs. Abstracted in: Biol. Abstr., Balt., 1939, 13: No. 9211; Chem. Abstr., 1939, 33: 6424[6].

1532

Silberberg, M. and Silberberg, R. THE GROWTH AND RETROGRESSIVE CHANGES IN CARTILAGE AND BONE OF THE GUINEA PIG PRODUCED BY POTASSIUM IODIDE. Growth, Ithaca, 1938, 2: 369-374. 9 refs. Abstracted in: Biol. Abstr., Balt., 1939, 13: No. 9212.

1533

Silberberg, M. and Silberberg, R. SKELETAL CHANGES CAUSED BY THE COMBINED ADMINISTRATION OF THYROXIN AND ESTROGEN. Am. J. Path., 1946, 22: 1033-1045. 3 pl. 11 refs. "In growing mice, the skeletal effects of estrogen can be modified but not prevented by simultaneous administration of thyroxin. Thyroxin partly restores both hypertrophy of cartilage and resorption of cartilage and bone which are markedly inhibited by estrogen. However, thyroxin does not counteract the suppression of proliferation of the cartilage and its regression caused by estrogen."

1534

Silberberg, M. and Silberberg, R. SKELETAL DEVELOPMENT AND DEGENERATIVE JOINT DISEASE IN MICE TREATED WITH RADIOACTIVE IODINE (I^{131}). Am. J. Path., 1952, 28: Proc., 569-570. An abstract.

1535

Smith, E. E. and McLean, F. C. EFFECT OF HYPERTHYROIDISM UPON GROWTH AND CHEMICAL COMPOSITION OF BONE. Endocrinology, 1938, 23: 546-552. 21 refs. "Chemical analysis of the bones of rats fed sufficient thyroid substance to produce severe hyperthyroidism revealed no evidence of failure of calcification in the bones of rapidly growing rats or of decalcification of the bones of older rats. ... There was cessation or marked retardation of growth at the epiphyseal junctions of the femurs and tibias of rats between 4.5 and 8 months of age after feeding toxic doses of thyroid for from 4 to 12 weeks."

HORMONAL INFLUENCE - THYROID (Continued)

1536
Thompson, J. THE INFLUENCE OF CALCIUM AND IODINE ON GROWING RATS. Endocrinology, 1933, 17: 537-549. 22 refs. Abstracted in: Biol. Abstr., Balt., 1934, 8: No. 19839.

1537
*Tinacci, F. and Agostini, C. L'AZIONE DELLA TIROXINA SUL CONTENUTO LIPIDICO DEL TESSUTO CARTILAGINEO IN RELAZIONE AL FENOMENO DELL' ACCRESCIMENTO SCHELETRICO. Boll. Soc. ital. biol. sper., 1953, 29: 282-284. Abstracted in: Chem. Abstr., 1954, 48: 263b.

1538
Vincenti, M. L'IMPORTANZA DELLA TIROIDE NELLA GUARIGIONE DELLE FRATTURE. RICERCHE SPERIMENTALI. Policlinico, 1943, 50: sez. prat., 78-83. 25 refs. Abstracted in: Biol. Abstr., Balt., 1949, 23: No. 14867.

1539
Weiss, R. M. and Noback, C. R. THE EFFECTS OF THYROXIN AND THIOURACIL ON THE TIME OF APPEARANCE OF OSSIFICATION CENTERS OF RAT FETUSES. Endocrinology, 1949, 45: 389-395. 15 refs. Abstracted in: Biol. Abstr., Balt., 1950, 24: No. 9177; Chem. Abstr., 1950, 44: 8465c.

1540
Weisschedel, E. DIE ABHANGIGKEIT DES SKELETTWACHSTUMS VON SCHILDDRÜSE UND HYPOPHYSE. Zbl. Chir., 1947, 72: 1438-1444. 1 ref.

1541
Wolterink, L. F., Epstein, D. I. and Murray, M. EFFECT OF THIOURACIL INDUCED HYPOTHYROIDISM ON THE PARTITION OF RADIOACTIVE CALCIUM BETWEEN BONE AND LIVER IN NORMAL AND RACHITIC MALE RATS. Fed. Proc., Balt., 1951, 10: 148-149. An abstract.

See:

687	741	772	823	824
825	933	1156	1179	1189
1202	1208	1230	1239	1241
1273	1277	1278	1280	1283
1313	1316	1323	1328	1334
1343	1370	1415	1471	1484

MARROW RELATIONSHIPS

see also TISSUE EXTRACTS; TISSUE TRANSPLANTS

1542
Ascenzi, A. SULLE PROPRIETÀ OTTICHE DELL'OSSO UMANO NORMALE E PATOLOGICO (SIGNIFICATO DELLE ALTERAZIONI OSSEE NEL MORBO DI COOLEY). Riv. antrop., 1948-1949, 36: 97-119. 14 refs.

1543
Ferroni, M. IL QUADRO BIOCHIMICO DEL MIDOLLO OSSEO. NOTA SECONDA: LA GLICO-CLOROMIELIA DI BASE IN CONDIZIONI NORMALI E PATOLOGICHE. Arch. pat., Bologna, 1942, 22: 473-488.

1544
Guarnaschelli-Raggio, A. AZIONE DELL'ANEMIA DA SALASSO SULLA COMPOSIZIONE MINERALE DELLE OSSA. Pathologica, Genova, 1939, 31: 99-106. 33 refs. English and German summaries. Abstracted in: Chem. Abstr., 1939, 33: 5907[5].

1545
Guarnaschelli-Raggio, A. and Gaetano, M. COMPORTAMENTO DELLA COMPOSIZIONE MINERALE DELLO SCHELETRO IN RAPPORTO ALL'INTRODUZIONE DI LIPOIDI SPLENICI INIBENTI IL MIDOLLO OSSEO. (RICERCHE SPERIMENTALI). Policlinico, 1942, 49: 1-7. 20 refs. Abstracted in: Chem. Abstr., 1947, 41: 3202i.

1546
Holmdahl, D. E. and Ingelmark, B. E. DER KONTAKT ZWISCHEN GELENKKNORPEL UND KNOCHENMARKHÖHLE. Acta Soc. med. upsal., 1950, 55: 147-171. 14 refs. Shorter versions of this paper are published in English in: Acta orthop. scand., 1950, 20: 156-165; Acta anat., Basel, 1951, 12: 341-349. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 1101. "In all joints examined direct contacts between the medullary cavities of the bones and the basal parts of the articular cartilages have been proved. In the great majority of cases it is the calcified part of the articular cartilage that touches the medullary cavity. In some cases offshoots of medullary cavity tissue reaching into the un-calcified articular cartilage have been found... In several cases a special arrangement of the bone in relation to the point of contact has been observed."

1547
Huggins, C. and Smith, K. McL. THE EFFECT OF HYPERTROPHIC CARTILAGE ON BONE MARROW GROWTH. J. Exp. M., 1938, 67: 41-48. 2 pl. 14 refs.

1548
Lacroix, P. COMMENT LE PÉRIOSTE ET LA MOELLE DES OS GRANDISSENT-ILS? Rev. orthop., Par., 1949, 35: 141-145. 4 refs. Abstracted in: Excerpta med., Sect. 1, 1950, 4: No. 901.

1549
Lacroix, P. THE GROWTH OF THE BONE MARROW. J. Bone Surg., 1949, 31A: 776-778. 3 refs. Abstracted in: Biol. Abstr., Balt., 1950, 24: No. 12669. "The clear zone between the end of the medullary cavity enlarged at a rate exactly proportional to the growth rate of the neighboring epiphyseal cartilage. The author concludes that marrow grows by a combination of peripheral addition of new tissue and interstitial growth. It thus appears to be intermediate between bone growth, a peripheral effect, and periosteum, which is interstitial." - Biol. Abstr.

1550
Levander, G. AN EXPERIMENTAL STUDY OF THE ROLE OF THE BONE MARROW IN BONE REGENERATION. Acta chir. scand., 1939-40, 83: 545-560. pl. 10 refs. Abstracted in: Biol. Abstr., Balt., 1946, 20: No. 17630. In experiments with rabbits of different ages bone marrow was grafted into subcutaneous soft tissues. Where bone formation occurred the marrow cells were observed to die and it was concluded that the new bone arose from the surrounding mesenchymal tissues stimulated by the marrow graft.

1551
Molchanova, V. A. ROL' KOSTNOGO MOZGA V REGENERATSII KOSTI. [ROLE OF BONE MARROW] Vestnik khir., 1940, 60: 345-348. 2 pl. 13 refs.

1552
Piringer-Kuchinka, A. ZUR KENNTNIS DES BAUPLANES UND DER ZELLVERMEHRUNG IM KNOCHENMARKGEWEBE. Wien. klin. Wschr., 1951, 63: 909-911. Abstracted in: Excerpta med., Sect. 1, 1953, 7: No. 1161. The structure and processes of cell multiplication of bone marrow were studied in frozen and stained sections of marrow from guinea pigs, rabbits, dogs and humans.

1553
Ragnotti, E. DIE TATSACHE DES ERSCHEINENS DER EPIPHYSENLINIEN DURCH DIE ERYTHROPOESE. Virchow's Arch., 1930, 277: 788-803. 17 refs. Abstracted in: Biol. Abstr., Balt., 1932, 6: No. 20360.

MARROW RELATIONSHIPS (Continued)

1554
Rizvash, S. I. EKSPERIMENTAL'NYE ISSLEDOVANIIA O VLIANII KOSTNOGO MOZGA NA ZAZHIVLENIE PERELOMOV. [EXPERIMENTAL STUDY OF THE MARROW INFLUENCE ON KNITTING OF THE PIPE BONE FRACTURES] Khirurgiia, Moskva, 1939, 4: 66-69.

1555
Röhlich, K. ÜBER DIE BEIZIEHUNGEN ZWISCHEN DER KNOCHENSUBSTANZ UND DER BLUTBILDUNG IM KNOCHENMARK. Zschr. mikr. anat. Forsch., 1941, 49: 425-464. 14 refs.

1556
Tischendorf, W. and Naumann, W. FUNKTIONELLE BEZIEHUNGEN ZWISCHEN KNOCHENMARK UND KNOCHEN. Deut. Arch. klin. Med., 1948, 193: 533-554. 44 refs.

1557
Zawisch, C. LES RELATIONS DE L'HÉMATO POIÈSE AVEC LA RESORPTION DE TISSU OSSEUX. Gaz. méd. port., 1954, 7: 105-112. 20 refs.

See:

89	169	260	346	675
797	1453	1880	2505	2514
2515	2517			

MECHANICAL INFLUENCE

1558
Abramson, A. S. ATROPHY OF DISUSE. Arch. Phys. M., 1948, 29: 562-570. 44 refs. Abstracted in: Excerpta med., Sect. 5, 1949, 2: No. 1950. "Review in which the conclusion is reached that disuse atrophy is a decrease in size resulting from an inability to develop full function. In muscle, the production of tension by contraction prevents atrophy. Contraction through a full range and against a load is most effective in preventing atrophy. Denervation causes atrophy only by producing almost complete disuse. Neuronal atrophy is avoided when the ganglion cell and its axon conduct impulses to a functioning effector organ. In bone, atrophy is avoided by intermittent weight bearing." - Excerpta med.

1559
Almi, L. SUI FATTORI STRUTTURALI, CHIMICI E FISICI DELLA RESISTENZA MECCANICA DELL'OSSO UMANO. Arch. De Vecchi, 1940, 2: 658-678. Approx. 40 refs.

1560
Altmann, K. EXPERIMENTELLE UNTERSUCHUNGEN ÜBER MECHANISCHE URSACHEN DER KNOCHENBILDUNG. Zschr. Anat. Entw., 1950, 114: 457-476. 15 refs. In white rats a small bone implant was made between the tightly stretched muscles and the surface of the tibia, thus forming two wedge-shaped spaces which became filled with spongy bone. This bone formation was considered the direct result of local mechanical conditions.

1561
Altmann, K. UNTERSUCHUNGEN ÜBER FRAKTURHEILUNG UNTER BESONDEREN EXPERIMENTELLEN BEDINGUNGEN. EIN BEITRAG ZUR BIOMECHANIK DER FRAKTURHEILUNG. Zschr. Anat. Entw., 1950, 115: 52-81. 22 refs. In rats, the fibula was fractured in the middle and the site isolated from surrounding soft parts by encasement in a piece of macerated boiled rat femur. Bone consolidation followed, sometimes with incorporation of the casing. It is concluded that, while various factors contribute to osteogenesis, "the basic condition for every bone formation is to be sought in exactly definable mechanical causes."

1562
Amprino, R. FATTORI CHE REGOLANO IL RIMANEGGIAMENTO STRUTTURALE DELLE OSSA. Arch. sc. biol., Bologna, 1946, 31: 208-224. 29 refs. Abstracted in: Biol. Abstr., Balt., 1950, 24: No. 12665. Through the processes of erosion and redeposition bone structure varies with age. The amount of erosion depends on the organism's demands for mineral salts, needed during growth or the building of new bone and the modification of bone form. In the deposition which succeeds erosion the mineral salts ingested with food are also fixed to the organic ground substance. The gross architecture and minute structure of bone are regulated primarily by mechanical factors. The article contains a review of the literature.

1563
Amprino, R. RECHERCHES ET CONSIDÉRATIONS SUR LA STRUCTURE DU CARTILAGE HYALIN. Acta anat., Basel, 1948, 5: 123-146. 25 refs. Abstracted in: Biol. Abstr., Balt., 1949, 23: No. 18849. Critical review of recent research on the structure of hyaline cartilage and discussion of the effects on cartilage of functional or mechanical stress.

1564
Amprino, R. RELATIONS ENTRE LA STRUCTURE ET LA PHYSIOLOGIE DE L'OS. Ann. Soc. sc. méd. natur., Brux., 1951, 4: 209-225. pl. In this study of the relation between bone form and structure and its functions as supporting tissue and mineral reservoir, it is suggested that structural modifications are related in part to the body's need of minerals for various functions and in part to mechanical stresses exerted externally and internally upon bone.

1565
Amprino, R. VALORE FUNZIONALE DELL'ARCHITTURA E DELLA STRUTTURA DELLE OSSA LUNGHE DELL'UOMO. Gior. Accad. med. Torino, 1938, 101: 283-306.

1566
Amprino, R. and Bairati, A. CONTRIBUTO ALLO STUDIO DEL VALORE FUNZIONALE DELLA STRUTTURA DELLA SOSTANZA COMPATTA DELLE OSSA. Chir. org. movim., 1935-1936, 20: 527-541. 23 refs.

1567
Amprino, R. and Cattaneo, R. IL SUBSTRATO ISTOLOGICO DELLE VARIE MODALITÀ DI INSERZIONI TENDINEE ALLE OSSA NELL'UOMO. RICERCHE SU INDIVIDUI DI VARIA ETÀ. Zschr. Anat. Entw., 1937, 107: 680-705. 13 refs.

1568
*Anseroff, N. [J.] ARCHITEKTONIK DER LANGEN KNOCHEN IN VERBINDUNG MIT ALTER UND KONSTITUTION. Zschr. menschl. Vererb., 1933-1934, 18: 40-51. 14 refs.

1569
Appleton, A. B. POSTURAL DEFORMITIES AND BONE GROWTH. Lancet, Lond., 1934, 1: 451-454. Abstracted in: Biol. Abstr., Balt., 1935, 9: No. 16923.

1570
Arandes, R. and Viladot, A. BIOMECANICA DEL CALCANEO. Med. clin., Barcel., 1953, 21: 25-34. 22 refs. Abstracted in: Excerpta med., Sect. 9, 1954, 8: No. 4070.

1571
Bandini, T. RICERCHE SPERIMENTALI SULLA INFLUENZA DEL CARICO FUNZIONALE SULLO SPESSORE DELLE CARTILAGINI DI CONIUGAZIONE NEL BAMBINO. Accad. med., Tor., 1952, 67: 458-477. 19 refs.

MECHANICAL INFLUENCE (Continued)

1572
Baud, C. A. LA STRUCTURE FONCTIONNELLE DE L'OS ET DU CARTILAGE. Praxis, Bern, 1953, 42: 241-244. 28 refs. Abstracted in: Excerpta med., Sect. 2, 1953, 6: No. 5946.

1573
Biebl, M. DIE STETS TYPISCHE CALLUSBILDUNG BEI DER IDEALGESTELLTEN, DRAHTGENÄHTEN OBERSCHENKELSCHAFTFRAKTUR UND DAS DARAUS SICH ABLEITENDE ALLGEMEINE GESETZ VON DER FÖRDERNDEN BZW. HEMMENDEN WIRKUNG VON DRUCK-BZW. ZUGSPANNUNGEN AUF DIE CALLUSBILDUNG ÜBERHAUPT. Arch. klin. Chir., 1939, 194: 171-227.

1574
Bisotti, P. L. CONTRIBUTO ALLO STUDIO DEL VALORE DELLA CONTRAZIONE MUSCOLARE NELLA GUARIGIONE DELLE FRATTURE. Riv. pat. clin., Parma, 1949, 4: 335-345. Abstracted in: Excerpta med., Sect. 5, 1950, 3: No. 3374.

1575
Block, W. DIE BEDEUTUNG MECHANISCHER FAKTOREN BEI DER KNOCHENBRUCHHEILUNG. Arch. klin. Chir., 1939, 196: 557-566.

1576
Bogdaschew, N. DER ZUSAMMENHANG DER ANATOMISCHEN FORMEN DER METACARPAL- UND METATARSALKNOCHEN DER HAUSTIERE MIT DEM HISTOLOGISCHEN BAU UND DEN CHEMISCH-PHYSIKALISCHEN EIGENSCHAFTEN DERSELBEN. Anat. Anz., 1930, 70: 143-154. 15 refs. Abstracted in: Biol. Abstr., Balt., 1932, 6: No. 23325.

1577
Bogdaschew, N. FUNKTIONELLE UNTERSCHEIDUNGSMERKMALE IM ANATOMISCH-HISTOLOGISCHEN BAU DER RÖHRENKNOCHEN BEI DEN HAUSTIEREN. Anat. Anz., 1935, 79: 242-258. 13 refs. Abstracted in: Biol. Abstr., Balt., 1936, 10: No. 1845.

1578
Bressou, C. and Vladutiu, O. SUR LA MÉCANOGÉNÈSE DU CARTILAGE ARTICULAIRE FÉMORO-ROTULIEN. Bull. Acad. vét. France, 1948, 21: 261-267. 2 refs. Abstracted in: Excerpta med., Sect. 1, 1949, 3: No. 776.

1579
Bruno, G. LO SPERONE FEMORALE; SVILUPPO, COSTITUZIONE E SIGNIFICATO MECCANICO. Monit. zool. ital., 1933, 44: Suppl., 328-330. 5 refs.

1580
Bruno, G. STRUTTURA E FUNZIONE DELLE OSSA DELLA GAMBA: LA TIBIA E LA FIBULA. Chir. org. movim., 1946, 30: 298-301. 7 refs.

1581
*Bruno, G. STRUTTURA E RESISTENZA DELLE OSSA. Chir. org. movim., 1942-1943, 28: 430-433.

1582
*Bruno, G. SULLA ARCHITETTURA, SULLA STRUTTURA E SULLA FUNZIONE DELLE OSSA. Chir. org. movim., 1942-1943, 28: 427-429.

1583
Büttner, A. and Rohbein, F.. EXPERIMENTELLE ÜBERLASTUNGSSCHADEN DES RÖHRENKNOCHENS. Arch. klin. Chir., 1949, 263: 331-350. 28 refs. Abstracted in: Excerpta med., Sect. 5, 1951, 4: No. 2632. The tibiae of anesthetized dogs were subjected to repeated rhythmic bending and the effects of the pressure and traction stresses on the bone were studied radiologically and histologically.

1584
Casacci, A. CONTRIBUTO ALLO STUDIO DELL'AZIONE DEL CARICO SULLO SVILUPPO DELLA CARTILAGINE ARTICOLARE UMANA. Arch. ortop., Milano, 1952, 65: 8-15. 21 refs.

1585
Ceci, C. O. BIOMECANICA OSEA. Arch. argent. kines., 1949, 2: 35-39. 7 refs. From a review of pertinent literature it is concluded that the morphological and structural development of bone is in great part the result of pressure and traction. Traction is resisted by the collagen fibrils and pressure by the calcified ground substance.

1586
Cordier, G. ARCHITECTURE DE L'EXTREMITÉ INFÉRIEURE DU FÉMUR ET DE L'EXTRÉMITÉ SUPÉRIEURE DU TIBIA (ESSAI D'EXPLICATION STRATIGRAPHIQUE). Ann. anat. path., Par., 1939, 16: 1, 165.

1587
Crêtin, A. L'OSSIFICATION ET LA RÉPARATION DES OS FRACTURÉS. Afrique fr. chir., 1949, Nos. 3-4, 49-51. Abstracted in: Excerpta med., Sect. 5, 1950, 3: No. 3708.

1588
Crêtin, A. L'OSTÉOGENÈSE RÉPARATRICE. Languedoc méd., 1948, 31: 55-77.

1589
Crêtin, A. RÉFLEXIONS SUR L'HISTOGÉNÈSE DU TISSU OSSEUX À LA LUMIÈRE DE L'ÉTUDE DES RETARDS DE CONSOLIDATION. Presse méd., 1940, 48: 996-999.

1590
Crêtin, A. LE TRINÔME OS-MUSCLE-PEAU. Praxis, Bern, 1951, 40: 862-864.

1591
Dal Zotto, E. ARCHITETTURA DELLA SPUGNOSA DEL TARSO UMANO IN CONDIZIONI MORFO-FUNZIONALI ABNORMI. Boll. Soc. ital. biol. sper., 1947, 23: 913-915. Abstracted in: Excerpta med., Sect. 1, 1949, 3: No. 919.

1592
Danilova, E. I. and Sviridov, A. I. ROST I OKOSTENENIE SKELETA KONECHNOSTEI V USLOVIAKH EKSPERIMENTAL'NO IZMENENNOI NAGRUZKI. [GROWTH AND OSSIFICATION OF THE SKELETON OF EXTREMITIES UNDER EXPERIMENTALLY VARIED LOAD] Zool. zh., Moskva, 1953, 32: 780-786.

1593
Davenport, C. B. RESPONSIVE BONE. Proc. Am. Philos. Soc., 1941, 84: 65-70. 4 refs. Abstracted in: Biol. Abstr., Balt., 1941, 15: No. 14677. A study was made by x-rays of the heel bone of a normal walking person; of a 20-year-old girl, who had not walked from birth; and of a girl of 20 years, who had walked until 10 years of age. It was concluded that the bone-forming cells respond to directive thrusts and pulls made upon normally functioning bones by forming trabeculae in adaptative positions.

1594
Debrunner, H. FORM UND FUNKTION IM KNOCHENGEWEBE. Med. Welt., 1936, 10: 363-366. 4 refs.

1595
Debrunner, [H.] VOM LEBEN DES KNOCHENS. Verh. Deut. orthop. Ges., (1935) 1936, 30.Kongr., 40-69. 60 refs.

MECHANICAL INFLUENCE (Continued)

1596
Desplas, R. and Bernard. CONTRIBUTION À L'ÉTUDE DE LA MALADIE DES VIBRATIONS (EXAMEN RADIOGRAPHIQUE DE 100 OUVRIERS UTILISANT LES OUTILS PNEUMATIQUES DANS LES TRAVAUX PUBLICS). Méd. usine, 1949, 11: 415-417. Abstracted in: Excerpta med., Sect. 9, 1951, 5: No. 2464. "Vacuolar lesions of the carpal bones were found in 40% of cases. Exostosis, epiphyseal decalcification, deformity of the elbow-joint and the scaphoid bones were less frequently observed. Clinical symptoms were often absent." - Excerpta med.

1597
*[Dolgo-Saburov, B. A.] ROL' MYSHTS V MORFOGENII SKELETA. (SOOBSHCHENIE 1-E). [THE ROLE OF THE MUSCLES IN THE MORPHOGENY OF THE SKELETON. (1ST COMMUNICATION).] Bull. Inst. sc. Lesshaft, 1930, 16: 123-159. German summary. Abstracted in: Biol. Abstr., Balt., 1932, 6: No. 11308.

1598
Dolgo-Saburov, B. [A.] ÜBER EINIGE EIGENTÜMLICH KEITEN DER KNOCHENSTRUKTUR AN DEN ANHEFTUNGSSTELLEN DER SHENEN. Gegenbaurs morph. Jahrb., 1935, 75: 393-411. Literaturverzeichnis: p. 410-411.

1599
Dovgiallo, N. D. DETERMINANTY FORMY NEKOTORYKH KOSTEI SKELETA CHELOVEKA. [DETERMINANTS OF FORM IN SOME BONES OF THE HUMAN SKELETON] Arch. russ. anat., 1940, 24: 38-53. German summary, p. 125.

1600
Dovgiallo, N. D. DIE STRUKTUR DER COMPACTA DES UNTERKIEFERS BEI NORMALEM UND REDUZIERTEM ALVEOLARFORTSATZ. Zschr. Anat. Entw., 1932, 97: 55-67. 7 refs. Abstracted in: Biol. Abstr., Balt., 1933, 7: No. 22219. This study showed that: "The structure of the compacta of the mandible is to be regarded as purely functional, the haversian columns lying along the lines of force and thereby producing optimal resistance of the bone. In each new field of force, the structure of the bone is altered to follow the principle of maximal resistance."

1601
Egger, K. BEITRAG ZUR KENNTNIS DER MECHANISCHEN BEDINGUNGEN FÜR DIE KNOCHENBRUCHHEILUNG. Schweiz. med. Wschr., 1939, 69: 298-300.

1602
Eggers, G. W. N., Shindler, T. O. and Pomerat, C. M. THE INFLUENCE OF THE CONTACT-COMPRESSION FACTOR ON OSTEOGENESIS IN SURGICAL FRACTURES. J. Bone Surg., 1949, 31A: 693-716. 12 refs. Abstracted in: Excerpta med., Sect. 9, 1950, 4: No. 3905; Biol. Abstr., Balt., 1950, 24: No. 12668.

1603
Eggers-Lura, H. TISSUE REACTIONS OF BONE UPON MECHANICAL STRESSES. Am. J. Orthodont., 1952, 38: 453-459. 12 refs. Forces within the limits of tolerance will stimulate bone if they are applied as intensified normal forces. If pressure is applied to a region of bone which is normally under tension, bone resorption will follow. Increase of pressure or tension beyond the limits of tolerance leads to resorption of bone.

1604
Ekholm, R. and Ingelmark, B. E. FUNCTIONAL THICKNESS VARIATIONS OF HUMAN ARTICULAR CARTILAGE. Acta Soc. med. upsal., 1952, 57: 39-59. 11 refs. Abstracted in: Excerpta med., Sect. 1, 1954, 8: No. 682.

1605
Ekholm, R. and Norbäck, B. ON THE RELATIONSHIP BETWEEN ARTICULAR CHANGES AND FUNCTION. Acta orthop. scand., 1951, 21: 81-98. 36 refs.

1606
Elftman, H. SKELETAL AND MUSCULAR SYSTEMS: STRUCTURE AND FUNCTION. IN: MEDICAL PHYSICS (Glasser, O., ed.) 1944, p. 1420-1430. 31 refs.

1607
Erdheim, J. ÜBER DIE UNEBENEN VERBINDUNGSFLÄCHEN DER HARTGEWEBE. Wien. med. Wschr., 1934, 84: 380-382. 2 refs.

1608
Estel, L. and Asling, C. W. AN EXPERIMENTAL APPROACH TO THE MECHANICAL SIGNIFICANCE OF BONE FORM. Am. J. Phys. Anthrop., 1948, 6: 413-421. 3 refs. The mechanical significance of muscle attachments on skeletal features is demonstrated by flexion and supination tests of the bones of the forearm.

1609
Evans, F. G. THE BIOMECHANICS OF THE FEMUR. Anat. Rec., 1949, 103: 446-447. An abstract. "The mechanical properties of the femur and the effect of loading in different ways are discussed."

1610
Evans, F. G. METHODS OF STUDYING THE BIOMECHANICAL SIGNIFICANCE OF BONE FORM. Am. J. Phys. Anthrop., 1953, 11: 413-435. Abstracted in: Excerpta med., Sect. 1, 1954, 8: No. 863; Biol. Abstr., Balt., 1954, 28: No. 10957. A review of the literature on methods and the data obtained through their use.

1611
Evans, F. G. STRESS AND STRAIN IN THE LONG BONES OF THE LOWER EXTREMITY. Instruct. Course Lect. Am. Acad. Orthop. Surgeons, 1952, 9: 264-271. 16 refs. Contents: General principles of stress and strain. - Behavior of the femur under various conditions of loading. - Experimentally produced fractures of the femur. - The tensile strength of compact bone of the femur.

1612
Evans, F. G., Lissner, H. R. and Pedersen, H. E. DEFORMATION STUDIES OF THE FEMUR UNDER DYNAMIC VERTICAL LOADING. Anat. Rec., 1948, 101: 225-241. 5 pl. 8 refs. Abstracted in: Excerpta med., Sect. 1., 1949, 3: No. 650. Stresscoat tests demonstrated that a small load of 15.8 inch pounds of energy dynamically applied produced stress patterns similar to a load of 400 to 715 pounds statically applied.

1613
Falk, G. DIE CALLUSBILDUNG UND IHRE MECHANISCHEN VORAUSSETZUNGEN. Arch. orthop. Unfallchir., 1951, 44: 619-624. A discussion of the role of mechanical stimulation in fracture repair. Pertinent theories are reviewed.

1614
Fehre. ÜBER GEHÄUFTES AUFTRETEN SOG. LOOSERSCHER UMBAUZONEN. Zbl. Chir., 1949, 74: 1269-1270. A comparison of localization zones observed in nutritional deficiency osteopathy and those reported in the literature in mechanical overloading injury show a marked similarity in the scapula and the pelvis, in the parasymphyseal and sacroiliac regions.

1615
Fick, H. DIE BEDEUTUNG DES EPIPHYSENKNORPELS FÜR DIE ENTWICKLUNG DER SPONGIOSAARCHITEKTUR IN PROXIMALEN FEMURENDE. Gegenbaurs morph. Jahrb., 1940, 85: 115-134. Bibliography: p. 131-134. Abstracted in: Biol. Abstr., Balt., 1947, 21: No. 25134. The arrangement of the spongiosa lamellae in the proximal end of the femur is studied in relation to the epiphyseal cartilage and to the lines of stress. Variations with age are noted.

1616
Follis, R. H., Jr. EFFECT OF MECHANICAL FORCE ON THE SKELETAL LESIONS OF ACUTE SCURVY IN GUINEA PIGS. Arch. Path., Chic., 1943, 35: 579-582. 5 refs. "In scorbutic guinea pigs a comparison was made between the hind legs, one of which had been immobilized by a plaster cast. At the cartilage shaft junction of this extremity there was a broad zone of calcified matrix material without bone or osteoid. No fractures or hemorrhages were seen. The marrow cells were found between the spaces of the matrical material. Thus, when stresses and strains were eliminated, the classic picture of scurvy with "Trümmerfeldzone" and "Gerüstmark" failed to appear."

1617
Freeman, L. W. THE METABOLISM OF CALCIUM IN PATIENTS WITH SPINAL CORD INJURIES. Ann. Surg., 1949, 129: 177-184. 32 refs. Abstracted in: Chem. Abstr., 1953, 47: 7087e. "Data on the Ca metabolism of over 700 paraplegic patients were analyzed. During recumbency, the urinary Ca was usually high, although the blood Ca was normal. About 23-25% of the patients developed urinary tract calculi. There was usually a decalcification of the long bones resulting not only from recumbency but from an absence of weight-bearing on the legs." - Chem. Abstr.

1618
Freund, E. JOINT CARTILAGE UNDER INFRA-PHYSIOLOGIC, ULTRAPHYSIOLOGIC AND EUPHYSIOLOGIC DEMANDS. Arch. Surg., 1939, 39: 596-623.

1619
Friedenberg, Z. B. and French, G. THE EFFECTS OF KNOWN COMPRESSION FORCES ON FRACTURE HEALING. Surg. Gyn. Obst., 1952, 94: 743-748. 7 refs. Abstracted in: Biol. Abstr., Balt., 1952, 26: No. 28346. "Experimental fractures of the ulna in dogs in which a compressing force of 12 to 18 pounds was applied across the fracture showed more rapid union than those with greater or lesser pressures. ... Whether or not pressure induces a specific osteogenetic response in healing bone tissue cannot be answered."

1620
Gelbke, H. THE INFLUENCE OF PRESSURE AND TENSION ON GROWING BONE IN EXPERIMENTS WITH ANIMALS. J. Bone Surg., 1951, 33A:947-954. 27 refs. Abstracted in: Biol. Abstr., Balt., 1952, 26: No. 15264.

1621
Gelbke, H. TIEREXPERIMENTELLE UNTERSUCHUNGEN ZUR FRAGE DER KNOCHENBILDUNG. Arch. klin. Chir., 1950, 264: 518-521. Abstracted in: Excerpta med., Sect. 9, 1951, 5: No. 2450.

1622
*Girdlestone, G. R. THE RESPONSE OF BONE TO STRESS. Proc. R. Soc. M., Lond., 1932, 26: pt. 1, 55-70. Abstracted in: Biol. Abstr., Balt., 1935, 9: No. 19832.

1623
Glegg, R. E. and Leblond, C. P. PRESSURE AS A POSSIBLE CAUSE OF DISSOLUTION AND REDEPOSITION OF BONE AND TOOTH CRYSTALS. Canad. J. M. Sc., 1953, 31: 202-206. 27 refs. "An hypothesis based on the physicochemical fact that pressure increases the solubility of crystals is presented to explain pressure-induced bone resorption. This hypothesis staisfactorily accounts for otherwise inexplicable results obtained in recent investigations on the distribution and turnover of radiophosphate in bone and tooth."

1624
Glücksmann, A. THE ROLE OF MECHANICAL STRESSES IN BONE FORMATION IN VITRO. J. Anat., Lond., 1942, 76: 231-239. 2 pl. 9 refs. "Pressure and tension stresses exerted on cartilage in vitro cause the reorientation of the cartilage cells and lead to the disintegration of the hyaline ground substance and its replacement by a fibrillar system. Tension stresses promote bone formation in osteogenic tissue in vitro and determine the pattern of osseous architecture. Skeletal tissue cultivated in vitro responds directly to mechanical stresses."

1625
Glücksmann, A. STUDIES ON BONE MECHANICS IN VITRO. I. INFLUENCE OF PRESSURE ON ORIENTATION OF STRUCTURE. Anat. Rec., 1938, 72: 97-113. 3 pl. 3 refs. Abstracted in: Biol. Abstr., Balt., 1938, 12: No. 15460. "Orientated structures were produced in unorientated bone tissue in vitro, by subjecting endosteal cultures to suitable pressure. The type of structure produced... depended on the degree of calcification of the tissue at the time when the pressure was applied."

1626
*Gottlieb, B. and Orban, B. DIE VERÄNDERUNGEN DER GEWEBE, BEI ÜBERMÄSSIGER BEANSPRUCHUNG DER ZÄHNE. 225p. Leipzig, Georg Thieme, 1931. Abstracted in: Biol. Abstr., Balt., 1934, 8: No.8608.

1627
Graumann, W. TOPOGENESE DER BINDEGEWEBS-KNOCHEN. UNTERSUCHUNGEN AN SCHADELKNOCHEN MENSCHLICHER EMBRYONEN. Zschr. Anat. Entw., 1951, 116: 14-26. 20 refs. Abstracted in: Excerpta med., Sect. 1, 1952, 6: No. 2019.

1628
Gubanov, A. G. VOZRASTNYE IZMENENIIA STRUKTURY KOSTEI V MESTAKH PRIKREPLENIIA MYSHTS I SVIAZOK; PREDVARITEL'NOE SOOBSHCHENIE. [AGE CHANGES OF BONE STRUCTURE AT THE SITE OF THE ATTACHMENT OF MUSCLES AND TENDONS; PRELIMINARY REPORT] Tr. Saratov gosud. med. inst., 1938, 2: 153-167.

1629
Hübler, C. and Reiss, O. EXPERIMENTELLE UNTERSUCHUNGEN ÜBER DIE FESTIGKEIT DES KNOCHENS IN NORMALEN UND IM ZUSTAND DER BRUCHHEILUNG. II. DIE FESTIGKEIT DES HEILENDEN KNOCHENBRUCHES IN BEZIEHUNG ZU WASSER- UND KALKGEHALT UND DEM RÖNTGENBILD. Deut. Zschr. Chir., 1936, 246: 760-772. 1 ref. In dogs the resistance of a healing fracture to mechanical force is studied in relation to its water and calcium content and to its radiograph.

1630
Häupl, K. HISTOLOGISCHE UNTERSUCHUNGEN ÜBER DIE FEINEREN GEWEBLICHEN VORGÄNGE BEI DER KNOCHENTRANSFORMATION. Münch. med. Wschr., 1938, 85: 1849-1851. 5 refs.

1631
Häupl, [K.] KNOCHENTRANSFORMATION. Med. Klin., Berl., 1942, 38: 383.

MECHANICAL INFLUENCE (Continued)

1632
Häupl, K. ÜBER DIE GESETZMÄSSIGKEITEN, WELCHE DIE GEWEBLICHEN VERÄNDERUNGEN BEI DER KNOCHEN-TRANSFORMATION BEHERRSCHEN. Zschr. Anat. Entw., 1942-1943, 112: 41-104. 25 refs.

1633
Häupl, K. ÜBER DIE GEWEBLICHEN VERÄNDERUNGEN BEI DER KNOCHENTRANSFORMATION. Bull. Schweiz. Akad. med. Wiss., 1950, 6: 343-358.

1634
Häupl, K. WELCHE GESETZMASSIGKEITEN BEHERRSCHEN DIE GEWEBLICHEN VERÄNDERUNGEN BEI DER KNOCHENTRANSFORMATION? Wien. klin. Wschr., 1941, 54: 853-862.

1635
*Hartingsvelt, H. van. DE VORMVERANDERINGEN VAN HET BOT ALS GEVOLG VAN MECHANISCHE KRACHTWEKINGEN. Tschr. tandheelk., 1950, 57: 439-471.

1636
Hayes, J. F. DYNAMIC CROSS-BENDING STUDIES ON THE FEMUR. Anat. Rec., 1949, 103: 467. An abstract. Abstracted in: Excerpta med., Sect. 1, 1949, 3: No. 1426.

1637
Henckel, K. O. ÜBER DIE FUNKTIONELLE STRUKTUR DES HYALINKNORPELS. Naturwissenschaften, 1932, 20: 557-560. 5 refs.

1638
Henckel, K. O. VERGLEICHEND-ANATOMISCHE UNTERSUCHUNGEN ÜBER DIE STRUKTUR DER KNOCHEN-KOMPAKTA NACH DER SPALTLINIENMETHODE. Gegenbaurs morph. Jahrb., 1931, (Teil 1) 66: 22-45. 9 refs. Comparative studies of fissure lines in the bones of man, the chimpanzee and the arboreal cercopithecus leads to the conslusion that there is a close relationship between bone structure and specific functional stresses.

1639
Hrdlicka, A. CONTRIBUTIONS TO THE STUDY OF THE FEMUR; THE CRISTA ASPERA AND THE PILASTER. Am. J. Phys. Anthrop., 1934, 19: 17-37. 2 refs. Abstracted in: Biol. Abstr., Balt., 1936, 10: No. 1923.

1640
Ingelmark, B. E. and Ekholm, R. A STUDY ON VARIATIONS IN THE THICKNESS OF ARTICULAR CARTILAGE IN ASSOCIATION WITH REST AND PERIODICAL LOAD. AN EXPERIMENTAL INVESTIGATION ON RABBITS. Upsala läk. fören. förh., 1948, 53: 61-74. 4 refs. Abstracted in: Excerpta med., Sect. 1, 1949, 3: No. 1171; Biol. Abstr., Balt., 1950, 24: No. 1866.

1641
Klaauw, C. J. van der. SIZE AND POSITION OF THE FUNCTIONAL COMPONENTS OF THE SKULL. A CONTRIBUTION TO THE KNOWLEDGE OF THE ARCHITECTURE OF THE SKULL, BASED ON DATA IN THE LITERATURE. Arch. néerl. zool., 1952, 9: 369-560. Bibliography: p. 551-556. Abstracted in: Biol. Abstr., Balt., 1953, 25: No. 1104.

1642
Knese, K.-H. DIE BEWEGUNGEN AUF EINER FÜHRUNGSFLÄCHE ALS GRUNDLAGE DER GELENK-BEWEGUNGEN, DARGESTELLT AM SCHULTERGELENK. GELENKSTUDIEN I. Zschr. Anat. Entw., 1950, 115: 115-161. Literatur: p. 160-161.

1643
Knese, K.-H. KINEMATIK DER GLIEDBEWEGUNGEN, DARGESTELLT AM HÜFT- UND ELLENBOGENGELENK. GELENKSTUDIEN II. Zschr. Anat. Entw., 1950, 115: 162-223. Literatur: p. 222-223.

1644
Knese, K.-H. KINEMATIK DES KNIEGELENKES. GELENKSTUDIEN III. Zschr. Anat. Entw., 1950, 115: 287-322. Literatur: p. 322.

1645
Koltze, H. STUDIE ZUR ÄUSZEREN FORM DER OSTEONE. Zschr. Anat. Entw., 1951, 115: 584-596. 15 refs. "Parts of a 4.6 mm. long chip taken from the middle phalanx of the index of an adult were reconstructed according to the wax plate procedure. Besides the known longitudinal structure of the osteons there were frequent cross connections with all the transitions from narrow Volkmann canals to 500-800 μ. long fusions. The daughter osteons, formed by branching, were in particular interconnected to a very great extent. The frequency of the places of connection varied with the location examined. The layers near the endosteum had an exceedingly great number of circular connections. It is not possible to assign a functional classification of this network of osteons, though it is supposed to be of mechanical importance.

1646
Krahl, V. E. THE TORSION OF THE HUMERUS: ITS LOCALIZATION, CAUSE AND DURATION IN MAN. Am. J. Anat., 1947, 80: 275-319. 78 refs. Abstracted in: Excerpta med., Sect. 1, 1948, 2: No. 1293.

1647
Krompecher, I. and Nébel, L. QUALITATIVE GESTALTUNG VON IN ENTWICKLUNG BEGRIFFENEN SKELETTEILEN UNTER EINWIRKUNG DER UMWELT. Acta morph. hung., 1951, 1: 55-66. 15 refs. Abstracted in: Bull. Anal. CNRS, 1952, 13: pt. 2, No. 108575. "The morphological development of the humerus is the result of forces acting on it in the course of embryonic and post-embryonic life." - Bull. Anal.

1648
Krompecher, S. EXPERIMENTELLE BEEINFLUSSUNG DER ART DER REGENERATIVEN KNOCHENBILDUNG DURCH MECHANISCHE EINWIRKUNG. Anat. Anz., 1936, 81: 138-148.

1649
Küntscher, G. DIE BEDEUTUNG DER DARSTELLUNG DES KRAFTFLUSSES IM KNOCHEN FÜR DIE CHIRURGIE. Arch. klin. Chir., 1935, 182: 489-551. Bibliography: p. 550-551.

1650
Küntscher, G. DIE DARSTELLUNG DES KRAFT-FLUSSES IM KNOCHEN. Zbl. Chir., 1934, 61: 2130-2136.

1651
Küntscher, G. ÜBER DEN NACHWEIS VON SPANNUNGSSPÉTZEN AM MENSCHLICHEN KNOCHENGERUST. Gegenbaurs Morph. Jahrb., 1935, 75: 427-444. Literatur: p. 442-444.

1652
Landoff, G. A. ETT EXPERIMENTELLT BIDRAG TILL LÖSNING AV PROBLEMET OM SAMBANDET MELLAN INAKTIVITET OK "AKUT BENATROFI." PREMILINÄRT MEDDELANDE NR 2. Nord. med., 1941, 12: 3666-3668.

1653
Langmaack, B. DIE POSTMORTALE BEEINFLUSSUNG DES WASSERGEHALTES BEIM KNIEGELENKKNORPEL. EIN EXPERIMENTELLER BEITRAG ZUM PROBLEM DER ARTHROSIS DEFORMANS. Arch. klin. Chir., 1952, 271: 496-510. Abstracted in: Excerpta med., Sect. 5, 1953, 6: No. 2324.

MECHANICAL INFLUENCE (Continued)

1654
Larsell, O. THE DEVELOPMENT OF THE SCAPULA FOLLOWING INTRA-UTERINE FORE LIMB AMPUTATION IN THE RAT. Anat. Rec., 1933, 56: 57-68. 2 refs. Abstracted in: Biol. Abstr., Balt., 1935, 9: No. 3860. This study describes both grossly and microscopically the effects of different degrees of muscular pull on the scapula during the later part of foetal life. The variations of muscular activity were produced by amputations of the fore limb in rat foetuses. The scapula of the other fore limb served as a control.

1655
Latinikówna, A. O BUDOWIE SUBSTANCJI GABCZASTEJ KOSCI. - ÜBER DIE ARCHITEKTUR DER KNOCHENSPONGIOSA. Bull. internat. Acad. polon. sc. Cl. med., (1932) 1933, p. 63-75. pl. 10 refs.

1656
Laux, G. LES ACTIONS DYNAMIQUES DES MUSCLES ET DES LIGAMENTS SUR L'ARCHITECTURE DES OS. Ann. anat. path., Par., 1930, 7: 401-413.

1657
Levi, G. M. NEOFORMAZIONE SPERIMENTALE DI CARTILAGINE SECONDARIA NELLA CAVIA E NEL PULCINO. Boll. Soc. ital. biol. sper., 1930, 5: 117-119. Abstracted in: Biol. Abstr., Balt., 1932, 6: No. 2199.

1658
Lucinescu, E. FUNKTIONELLE STRUKTUREN EXPERIMENTELLER HERKUNFT. Gegenbaurs morph. Jahrb., 1936, 78: 234-252. 14 refs.

1659
Maatz, R. DIE REAKTION DES KNOCHENS AUF FEDERDRUCK. Arch. orthop. Unfallchir., 1951, 44: 529-539. 9 refs.

1660
Maatz, R. DIE WUNDMECHANIK IN DER FEDER-OSTEOSYNTHESE. Zschr. Orthop., 1951, 80: 643-656. 24 refs. Next to the activating substance occurring in fracture haematomas, mechanico-functional stress plays the most significant role in the formation of callus. A study of 150 cases in which a spring osteosynthesis was carried out confirms this theory.

1661
*MacConaill, M. A. THE MOVEMENTS OF BONES AND JOINTS. II. FUNCTION OF THE MUSCULATURE. J. Bone Surg., 1949, 31B: 100-104.

1662
Machado de Sousa, O. L'ARCHITECTURE DE LA SUBSTANCE OSSEUSE COMPACTE DE LA MANDIBULE CHEZ L'HOMME ET LES ÉDENTÉS. Rass. biol. umana, 1947, 2: 23-28. 5 refs. Abstracted in: Excerpta med., Sect. 1, 1948, 2: No. 514.

1663
McMaster, P. E. BONE ATROPHY AND ABSORPTION. EXPERIMENTAL OBSERVATIONS. J. Bone Surg., 1937, 19: 74-83. 21 refs.

1664
Maj, G. SINGOLARE STRUTTURA DEL TESSUTO OSSEO IN "GALLUS GALLUS" ADULTO E VECCHIO. Monit. zool. ital., 1938, 48: Suppl., 140-147. 4 refs. The structure of the compact diaphysis of the bones of the upper and lower extremities of a 9 year old hen were examined histologically and compared with those of chickens of various ages. From modifications observed it was concluded that variations in bone tissue occur in response to mechanical and functional provocation.

1665
Maj, G. and Toaiari, E. OSSERVAZIONI SPERIMENTALI SUL MECCANISMO DI RESISTENZA DEL TESSUTO OSSEO LAMELLARE COMPATTO ALLE AZIONI MECCANICHE. Chir. org. movim., 1937, 22: 541-557. 17 refs.

1666
Martín Lagos, F., Zarapico, M. and Gómez, J. INFLUENCIA DE LAS ACCIONES MECANICAS DIVERSAS SOBRE LA FORMACIÓN DEL CALLO DE FRACTURA. Arch. med. exp., Madr., 1949, 12: 123-142. 8 pl. Abstracted in: Excerpta med., Sect. 5, 1950, 3: No. 2329.

1667
*Matzen, P. F. VOM EINFLUSS MECHANISCHER EINWIRKUNGEN AUF DIE KALLUSBILDUNG. Beit. klin. Chir., 1952, 184: 147-179. Abstracted in: Excerpta med., Sect. 9, 1952, 6: No. 8883.

1668
Mechanik, N. INDICES CAVI MEDULLARIS ET COMPACTAE FEMORIS. Zschr. Anat. Entw., 1928, 86: 188-203. 4 refs.

1669
Mechanik, N. UNTERSUCHUNG DER MARKHOHLE UND DER KOMPAKTEN SCHICHT DES OBERARMBEINES DES MENSCHEN UND DER HAUSTIERE. Zschr. anat. Entw., 1929, 89: 513-531. Literaturverzeichnis: p. 530-531.

1670
Mechanik, N. DIE VERTEILUNG DES KOMPAKTEN KNOCHENGEWEBES UND DIE DIMENSIONEN DER MARKHÖHLE DER TIBIA DES MENSCHEN UND DER HAUSTIERE. Zschr. ges. Anat., 1. Abt., 1930, 93: 198-222. 14 refs. Abstracted in: Biol. Abstr., Balt., 1933, 7: No. 22220.

1671
Morin, F. SULL'ARCHITETTURA DELLA CARTILAGINE ARTICOLARE NELL'UOMO. Atti Soc. ital. anat., (1947) 1948, 9.meet., 310-311.

1672
Murray, P. D. F. and Selby, D. INTRINSIC AND EXTRINSIC FACTORS IN THE PRIMARY DEVELOPMENT OF THE SKELETON. Arch. Entwmech., 1930, 122: 629-662. 20 refs. Abstracted in: Biol. Abstr., Balt., 1932, 6: No. 14412.

1673
Noltemeir, H. ÜBER DIE ENSTEHUNG DER ANATOMISCHEN FORM EINES KNOCHENS. Deut. zahnärztl., Zschr., 1947, 2: 109-113.

1674
Oliveira, H. de. CONTRIBUTION À LA CONNAISSANCE DE LA MÉCANO-STRUCTURE DU TIBIA HUMAIN. Fol. anat. Univ. conimbr., 1932, 7: No. 1, 1-10.

1675
Olivo, O. M. CONSIDERAZIONI SUL SIGNIFICATO FUNZIONALE DEGLI OSTEONI. Boll. Soc. ital. biol. sper., 1937, 12: 67-70. 6 refs.

1676
Olivo, O. M. RISPONDENZA DELLA FUNZIONE MECCANICA VARIA DEGLI OSTEONI CON LA LORO DIVERSA MINUTA ARCHITETTURA. Boll. Soc. ital. biol. sper., 1937, 12: 400-402. 4 refs.

1677
Olivo, O. M., Maj, G. and Toaiari, E. SUL SIGNIFICATO DELLA MINUTA STRUTTURA DEL TESSUTO OSSEO COMPATTO. Bull. sc. med., Bologna, 1937, 109: 369-394. 22 refs.

1678
Papilian, V. and Russu, I. G. CONSIDERAŢIUNI ASUPRA LAMEI OSOASE SUBTROCHANTINIENE; PINTENELE FEMURAL. Cluj. med., 1935, 16: 633-634. 2 refs. German translation in: Anat. Anz., 1935-36, 81: 280-283. Study of the subtrochanteric osseous lamellae of the femoral crista.

1679
Pauwels, F. DIE BEDEUTUNG DER BAUPRINZIPIEN DER UNTEREN EXTREMITÄT FÜR DIE BEANSPRUCHUNG DES BEINSKELETTES. ZWEITER BEITRAG ZUR FUNKTIONELLEN ANATOMIE UND KAUSALEN MORPHOLOGIE DES STÜTZAPPARATES. Zschr. Anat. Entw., 1950, 114: 525-538. Abstracted in: Excerpta med., Sect. 1, 1951, 5: No. 161. Data is presented to show that the greatest strain on the long bones is produced by the weight of the body. The muscles and legaments, serving as a tensil girder, reduce this strain.

1680
Pauwels, F. DIE BEDEUTUNG DER BAUPRINZIPIEN DES STÜTZ- UND BEWEGUNGSAPPARATES FÜR DIE BEANSPRUCHUNG DER RÖHRENKNOCHEN. ERSTER BEITRAG ZUR FUNKTIONELLEN ANATOMIE UND KAUSALEN MORPHOLOGIE DES STÜTZAPPARATES. Zschr. Anat. Entw., 1948, 114: 130-166.

1681
Pauwels, F. DIE BEDEUTUNG DER MUSKELKRÄFTE FÜR DIE REGELUNG DER BEANSPRUCHUNG DES RÖHRENKNOCHENS WÄHREND DER BEWEGUNG DER GLIEDER. DRITTER BEITRAG ZUR FUNKTIONELLEN ANATOMIE UND KAUSALEN MORPHOLOGIE DES STÜTZAPPARATES. Zschr. Anat. Entw., 1950, 115: 327-351.

1682
Pauwels, F. BEDEUTUNG UND KAUSALE ERKLÄRUNG DER SPONGIOSA-ARCHITEKTUR IN NEUER AUFFASSUNG. Klin. Wschr., 1948, 26: 123-124. An abstract. Abstracted in: Excerpta med., Sect. 1, 1950, 4: No. 1576. The arrangement of the lamellae in relation to the lines of tension in spongy bone is discussed.

1683
Pauwels, F. BEITRAG ZUR KLÄRUNG DER BEANSPRUCHUNG DES BECKENS, INSBESONDERE DER BECKENFUGEN. Zschr. Anat. Entw., 1948, 114: 167-180.

1684
Pauwels, F. ÜBER DIE BEDEUTUNG DER BAUPRINZIPIEN DES STÜTZ-UND BEWEGUNGSAPPARATES FÜR DIE BEANSPRUCHUNG DER RÖHRENKNOCHEN. Acta anat., Basel, 1951, 12: 207-227. 3 refs. Abstracted in: Biol. Abstr., Balt., 1952, 26: No. 1256. Study of mechanical stresses upon the long bones: tension, pressure and flexion; and of the muscular tensions which reduce these stresses to a minimum.

1685
Pauwels, F. ÜBER DIE MECHANISCHE BEDEUTUNG DER GRÖBEREN KORTIKALISSTRUKTUR BEIM NORMALEN UND PATHOLOGISCH VERBOGENEN RÖHRENKNOCHEN. Anat. Nachr., 1950, 1: 53-67. Abstracted in: Excerpta med., Sect. 1, 1951, 5: No. 326. Stresscoat studies of the lines of resistance in bent leg bones indicated that adjustment of the cortex to changed stress takes place horizontally and by the deposition of bone tissue within the curve.

1686
Pedersen, H. E., Evans, F. G. and Lissner, H. R. DEFORMATION STUDIES OF THE FEMUR UNDER VARIOUS LOADINGS AND ORIENTATIONS. Anat. Rec., 1949, 103: 159-185. pl. 10 refs. "Stresscoat" studies of human femora from adult male cadavers.

1687
Peitsara, H. TIEREXPERIMENTELLE RACHITSUNTERSUCHUNGEN MIT BESONDERER BERÜCKSICHTIGUNG DER MUSKELTÄTIGKEIT. Acta paediat., 1944, 31: Suppl. 3. 244p. Bibliography: p. 236-244. Abstracted in: Chem. Abstr., 1947, 41: 3179c. In dogs experimental studies were made on rickets and muscular exercise and on the effects of various doses of vitamin D.

1688
Piotet, G. RÉFLEXIONS SUR LA PHYSIOLOGIE DE LA RÉPARATION ET DE LA CROISSANCE DES OS. Helvet. chir. acta, 1945, 12: 614-631.

1689
Policard, A., Pehu, M. and Boucomont, J. STRUCTURE ET MÉCANISME DE FORMATION DE CERTAINES STRIES TRANSVERSALES OBSERVÉES SUR LES RADIOGRAPHIES D'OS LONGS. Bull. histol. appl., Lyon, 1931, 8: 233-241. 12 refs. Autopsy studies indicated that the transverse striations seen in X-ray studies of the long bones were due to the presence of additional transverse trabeculae. These could be formed during a period of relaxation of the axial tensions on the bone during growth.

1690
Pogs, F. and Walter, H. EXPERIMENTELLE STUDIE ÜBER DAS VERHALTEN DES BULBUS UND SKELETSYSTEMS UNTER DEM EINFLUSS EINER IN RICHTUNG UND GRÖSSE VERÄNDERTEN SCHWERKRAFT (ZENTRIFUGALWIRKUNG) WÄHREND DES WACHSTUMS. Virchows Arch., 1931, 671-683.

1691
Popa, G. T. and Alexandrescu, N. MÉCANOSTRUCTURE D'UN OS PATHOLOGIQUE. C. rend. Soc. biol., 1931, 107: 390-392.

1692
Rabson, S. M ÜBER ANPASSUNGSVORGÄNGE DES KNORPEL- UND KNOCHENGEWEBES IM VERSTEIFTEN GELENK. Virchows Arch., 1933, 291: 624-642. 20 refs.

1693
Rouvière, H. DIRECTION DES OS LONGS. Ann. anat. path., Par., 1938, 15: 830-838.

1694
Rouvière, H. and Cordier, G. SUR LA MORPHOGÉNÈSE DES OS. FORMATION DES SAILLIES ET DES DÉPRESSIONS NON ARTICULAIRES. Ann. anat. path., Par., 1935, 12: 459-463.

1695
Rutishauser, E. and Majno, G. LES LÉSIONS OSSEUSES PAR SURCHARGE DANS LE SQUELETTE NORMAL. Schweiz. med. Wschr., 1949, 79: 281-288. 46 refs. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 5280. After radial resection dogs were encouraged to walk and the effects of increased stress upon the ulna were studied radiologically and histologically.

1696
Rutishauser, E. and Majno, G. LÉSIONS OSSEUSES PAR SURCHARGE DANS LE SQUELETTE NORMAL ET PATHOLOGIQUE. Bull. Schweiz. Akad. med. Wiss., (1949) 1950, 6: 333-342. 1 ref. Abstracted in: Excerpta med., Sect. 5, 1953, 6: No. 1321.

1697
Saaf, J. EFFECTS OF EXERCISE ON ADULT ARTICULAR CARTILAGE. AN EXPERIMENTAL STUDY ON GUINEA PIGS WITH RELEVANCE TO THE CONTINOUS REGENERATION OF ADULT CARTILAGE. Acta orthop. scand, 1950, Suppl. 7. 86p. Approx. 100 refs.

1698
Sacchetti, A. SULL'ARCHITETTURA DEL FEMORE UMANO. Riv. antrop., 1948-1949, 36: 189-264.

1699
Schabadasch, A. BEITRÄGE ZUR SYNTHETISCHEN ERFORSCHUNG DES MIKROAUFBAUES DES RÖHREN-KNOCHENS. Morph. Jahrb., 1935, 76: 203-258. 76 refs.

1700
Schultz, A. H. THE RELATIVE THICKNESS OF THE LONG BONES AND THE VERTEBRAE IN PRIMATES. Am. J. Phys. Anthrop., 1953, 11: 277-311. 12 refs. Abstracted in: Excerpta med., Sect. 1, 1954, 8: No. 1069.

1701
Severi, A. LE ALTERAZIONI DELLA TECA CRANICA PER AUMENTO DELLA PRESSIONE ENDOCRANICA. (RICERCHE SPERIMENTALI.) Arch. ital. anat., 1933, 4: 135-144. 15 refs. Abstracted in: Biol. Abstr., Balt., 1934, 8: No. 15637.

1702
Shik, IA. L. and Grechishkin, S. V. O FUNKTSIONAL'NOM STROENII GUBCHATOGO VESHCHESTVA KOSTI. [FUNCTIONAL STRUCTURE OF THE SUBSTANTIA SPONGIOSA] Arch. russ. anat., 1940, 24: 175-181. 19 refs. German summary, p. 268. Abstracted in: Biol. Abstr., Balt., 1941, 15: No. 14902. "The theory of Meyer-Wolff-Roux is insufficient to explain the structure of the spongeous bone architecture. Röntgenograms from different positions of various bones showed that parallel lines of spongiosa run in a direction of the lines of force as determined by a function of one or the other set of muscles." - Biol. Abstr.

1703
*Simizu, M. [THE EXPERIMENTAL STUDY ON THE KINETO-ADAPTATION OF BONES. THE EFFECT OF THE MODIFIED ACTIVITY CAUSED BY THE AMPUTATION OF THE RIGHT ARM ON THE GROWTH OF BONES. III. INFLUENCE UPON CURVATURE OF CLAVICULA, SCAPULA AND RADIO-ULNA BONES] Dobutsugaku Zasshi, 1943, 55: 241-246. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 20561. "In white rats bone growth was analyzed by measuring the curvature and depth length relations of the lateral margins of the clavicle, scapula and radio-ulna. The influence of the lack of muscle pull on the operated side is described." - Biol. Abstr.

1704
Sladký, F. VLIV LOKÁLNICH PORUCH EPIFYSÁRNÍCH NA VÝRUST KOSTI. [EFFECT OF LOCAL EPIPHYSEAL DISTRUBANCE ON THE GROWTH OF BONE] Sborn. lék., 1938, 40: 1-44. 2 pl. Approx. 235 refs. French summary.

1705
Slijper, E. J. OVER DE DOORNUITSTEEKSELS VAN DE MENSCHELIJKE WERVELKOLOM. Ned. tschr. geneesk., 1946, 90: 1298-1307. Abstracted in: Biol. Abstr., Balt., 1947, 21: No. 11762.

1706
Storck, H. ÜBER FORM, BAU, BEANSPRUCHUNG UND LEISTUNG DES KNOCHENS. 75p. Stuttgart, Enke, 1947.

1707
Strobino, L. J , French, G. O. and Colonna, P. C. THE EFFECT OF INCREASING TENSIONS ON THE GROWTH OF EPIPHYSEAL BONE. Surg. Gyn. Obst., 1952, 95: 694-700. 6 refs. Abstracted in: Excerpta med., Sect. 9, 1953, 7: No. 5025; Biol. Abstr., Balt., 1953, 27: No. 16396.

1708
Thourén, G. OM MELLANANSIKTETS ARKITEKTONISKA BYGGNAD HOS ADULT HOMO. Odont. tskr., 1947, 55: 402-442. 66 refs.

1709
Thourén, G. OM UNDERKÄKENS ARKITEKTONISKA BYGGNAD HOS ADULT HOMO. Odont. tskr., 1947, 55: 335-401. 66 refs. Abstracted in: Excerpta med., Sect. 1, 1949, 3: No. 374.

1710
Tischendorf, F. QUANTITATIVE BEOBACHTUNGEN UBER DAS VERHALTEN DER HAVERSSCHEN LAMELLEN BEI BELASTUNG. II. MITTEILUNG: UNTERSUCHUNGEN ÜBER DAS KNOCHENGEWEBE. Arch. Entwmech., 1952, 146: 1-20. 39 refs. Abstracted in: Biol. Abstr., Balt., 1954, 28: No. 10961.

1711
Toaiari, E. RESISTENZA MECCANICA ED ELASTICITÀ DEL TESSUTO OSSEO STUDIATA IN RAPPORTO ALLA MINUTA STRUTTURA. Monit. zool. ital., Suppl., 1938, 48: 148-154. 2 refs. In a study of the effect of function on bone structure, splinters of compact bone, taken longitudinally along the anatomical axis of the radius, ulna and olecranon of the ox and the metatarsals and metacarpals of the ox, horse and mule were subjected to progressively increased pressure until fracture. It was found that in general a relationship existed between the fracture load and the degree of elasticity. Areas generally subject to tension had a greater resistance to fracture and a higher degree of elasticity than those generally subject to pressure. It was also noted that where resistance and elasticity were greatest the collagen fibrils were arranged vertically and that in zones of less resistance the arrangement of the fibrils tended to be circular or oblique.

1712
Todd, T. W. and Barber, C. G. THE EXTENT OF SKELETAL CHANGE AFTER AMPUTATION. J. Bone Surg., 1934, 16: 53-64. 2 refs. Abstracted in: Biol. Abstr., Balt., 1935, 9: No. 14735.

1713
Townsley, [W.] ARCHITECTURE OF FEMUR. Irish J. M. Sc., 1942, 6.ser., No. 201, 542. An abstract. "The author sought to demonstrate that the internal architecture and the external form of bones are based on the mechanical principles."

1714
Townsley, W. THE INFLUENCE OF MECHANICAL FACTORS ON THE DEVELOPMENT AND STRUCUTRE OF BONE. Am. J. Phys. Anthrop., 1948, 6: 25-45. 3 pl. Abstracted in: Biol. Abstr., Balt., 1948, 22: No. 17705. "A radiological investigation of the phylogenetic and ontogenetic development of the internal architectural features and external form of the upper end of the femur was made. Femora from representatives of various evolutionary levels - amphibian, reptilian, and mammalian - were compared with those of fetal, adolescent, and adult human bones. The relationship of the internal structure and external form to mechanical requirements is noted."

1715
Ulutas, I. SPALTLINIEN - YARIK CIZGILERI. Tip Fak. mecmuasi, Istanbul, 1952, 15: 197-210. 9 refs. German summary. Abstracted in: Excerpta med., Sect. 1, 1952, 6: No. 2069. "The 'Spaltlinien' are a kind of lines which are formed on a decalcified bone by means of a blunt-pointed needle. The author gives a survey on this subject and describes the results of his own investigation on human and anthropoid mandibles. The 'Spaltlinien' on the long bone are parallel to the axis of the bone, but on the mandible they are not regular in direction." - Excerpta med.

MECHANICAL INFLUENCE (Continued)

1716
Vigliani, F. ACCRESCIMENTO DELLE OSSA LUNGHE SPERIMENTALMENTE SOTTRATTE ALLE NORMALI SOLLECITAZIONI MECCANICHE. Atti Soc. ital. anat., 1950, 59: 322-325. 2 refs. Experiments on young dogs indicated that absence of mechanical stress by whatever means obtained, artificial immobilization, enervation or both combined, had a definite effect upon the growth in length of the long bones.

1717
Vigliani, F. ACCRESCIMENTO IN LUNGHEZZA DI OSSA TUBULARI IN ARTI SOTTRATTI SPERIMENTALMENTE AL CARICO MECCANICO. Arch. "Putti", 1952, 2: 207-221. 37 refs. Experiments on young dogs indicated that relief of an extremity from mechanical stress by artificial immobilization, brachial plexus nerve section or both, had no qualitative effect on bone growth processes nor on epiphyseal cartilage structure. Qualitative effects were evident in longitudinal growth of the long bones and in thickness of epiphyseal cartilage.

1718
Vigliani, F. INFLUENZA DELLE NORMALI SOLLECITAZIONI MECCANICHE SULLA STRUTTURA DELLE CARTILAGINI ARTICOLARI NEL PERIODO POST-NATALE. Boll. Soc. ital. biol. sper., 1951, 27: 1723-1725. Abstracted in: Excerpta med., Sect. 1, 1954, 8: No. 320.

1719
Vigliani, F. SULLA STRUTTURA DI OSSA SOTTRATTE SPERIMENTALMENTE ALLE NORMALI SOLLECITAZIONI MECCANICHE. Boll. Soc. ital. biol. sper., 1950, 26: 153-155. Abstracted in: Excerpta med., Sect. 1, 1951, 5: No. 626.

1720
Villemin, F. and Siméon, A. CONTRIBUTION À L'ÉTUDE DE LA THÉORIE DE LA FORME FONCTIONNELLE DES OS. Bordeaux chir., 1936, 7: 449-450. 3 refs.

1721
Volynskii, F. A. EKSPERIMENTAL'NAIA ATROFIIA KOSTNOI TKANI. [EXPERIMENTAL ATROPHY OF THE OSSEOUS TISSUE] Ortop. travmat., Kharkov, 1938, 1: 3-18. 84 refs. Abstracted in: Tsentr. referat. med. zh., 1938, 21: 502. "Experimental study of limb atrophy on dogs from 3 months to 7 years old. All groups of muscles of forearms and shins except vascular new-fibers were removed. ... Transformation of osseous tissue originated in distal sections of limbs at 10th day and progressed, enveloping all bones of limbs. The transformation was of atrophic nature, accompanied with qualitative and quantitative modification of external form and internal texture of bones. It developed earlier in osseous tissue of young animals. Osseous atrophy progressed without participation of osteoclasts. The atrophic process appeared on the side of removed muscles. Process of transformation started in places of higher pressure of the distal sections of limb and extended later to sites of relative rest." - Tsentr. referat. med. zh.

1722
Walter, C. W., Van Slyke, K. K. and Hufnagel, C. THE MOBILIZATION AND DEPOSITION OF BONE CALCIUM BY ELECTROLYSIS. A PRELIMINARY REPORT. Surgery, 1941, 10: 145-146. Abstracted in: Chem. Abstr., 1942, 36: 2274[2].

1723
Washburne, S. L. THE EFFECT OF THE TEMPORAL MUSCLE ON THE FORM OF THE MANDIBLES. J. Dent. Res., 1947, 26: 174. An abstract. "The temporal muscle of day-old rats was removed. Four months later the animals were sacrificed. No coronoid process was present, and the mandibular neck and condyle were smaller than normal. It is concluded that the extrinsic factors acting on the bone are more important than is usually supposed."

1724
Wermel, J. UNTERSUCHUNGEN ÜBER DIE KINETOGENESE UND IHRE BEDEUTUNG IN DER ONTO- UND PHYLOGENETISCHEN ENTWICKLUNG. (EXPERIMENTE UND VERGLEICHUNGEN AN WIRBELTIEREXTREMITÄTEN.) I. MITTEILUNG: ALLGEMEINE EINLEITUNG. VERÄNDERUNGEN DER LÄNGE DER KNOCHEN. Gegenbaurs morph. Jahrb., 1934, 74: 143-169. Approx. 27 refs. Abstracted in: Biol. Abstr., Balt., 1936, 10: No. 6866.

1725
Wermel, J. UNTERSUCHUNGEN ÜBER DIE KINETOGENESE UND IHRE BEDEUTUNG IN DER ONTO- UND PHYLOGENETISCHEN ENTWICKLUNG. (EXPERIMENTE UND VERGLEICHUNGEN AN WIRBELTIER-EXTREMITÄTEN.) II. MITTEILUNG: VERÄNDERUNGEN DER DICKE UND DER MASSE DER MASSE DER KNOCHEN. Gegenbaurs morph. Jahrb., 1935, 75: 92-127. Approx. 35 refs.

1726
Wermel, J. UNTERSUCHUNGEN ÜBER DIE KINETOGENESE UND IHRE BEDEUTUNG IN DER ONTO- UND PHYLOGENETISCHEN ENTWICKLUNG. (EXPERIMENTE UND VERGLEICHUNGEN AN WIRBELTIER- EXTREMITATEN) III. MITTEILUNG: VERANDERUNGEN DER WIDERSTANDSFAHIGKEIT DER KNOCHEN. Gegenbaurs morph. Jahrb., 1935, 75: 128-149. 4 refs.

1727
Wermel, J. UNTERSUCHUNGEN ÜBER DIE KINETOGENESE UND IHRE BEDEUTUNG IN DER ONTO- UND PHYLOGENETISCHEN ENTWICKLUNG. (EXPERIMENTE UND VERGLEICHUNGEN AN WIRBELTIER-EXTREMITATEN.) IV. MITTEILUNG: LAGERVERANDERUNGEN DER SKELETTELEMENTE UND DAMIT VERBUNDENE VERANDERUNGEN DER KNOCHEN- UND GELENKFORM. Gegenbaurs morph. Jahrb., 1935, 75: 180-228. Approx. 30 refs.

1728
Wermel, J. UNTERSUCHUNGEN ÜBER DIE KINETOGENESE UND IHRE BEDEUTUNG IN DER ONTO- UND PHYLOGENETISCHEN ENTWICKLUNG. (EXPERIMENTE UND VERGLEICHUNGEN AN WIRBELTIER-EXTREMITATEN.) VI. MITTEILUNG: VERÄNDERUNGEN DER MUSKULATUR. Gegenbaurs morph. Jahrb., 1935, 75: 452-458. 6 refs.

1729
Wilkinson, G. W and Leblond, C. P. THE DEPOSITION OF RADIOPHOSPHORUS IN FRACTURED BONES IN RATS. Surg. Gyn. Obst., 1953, 97: 143-150. 8 refs. Abstracted in: Biol. Abstr., Balt., 1954, 28: No. 943. Rats with humerus and tibia fractured at mid-shaft were injected with P^{32} and sacrificed 4 hours later. Radioautographs showed very active fixation of P^{32} by new bone trabeculae and Geiger counters showed increased uptake of P^{32} in the diaphysis and in the epiphyses of the fractured bone and even in the contralateral intact bone. The reconstruction of bony tissue in bones other than those fractured is attributed to internal bony pressure resulting from changes in the position and use of body and limb after fracture.

1730
Wright, R. D. FACTORS CONCERNED IN BONE STRUCTURE. J. Anat., Lond., 1934, 69: 89-90. pl. Abstracted in: Biol. Abstr., Balt., 1935, 9: No. 19854.

1731
Wyss, T. DIE KRAFTFELDER IN FESTEN KÖRPERN. Vjschr. naturforsch. Ges. Zürich, 1948, 93: 151-186. 8 refs. French and English summaries.

See:

101	130	271	448	451
474	479	529	574	890
954	1002	1092	1099	1105
1106	1346	2237	2242	2313
2352	2361			

METABOLISM

1732
Armstrong, W. D. BONE METABOLISM. Fed. Proc., Balt., 1944, 3: 201-207. 22 refs. A review covering: general metabolic consequences of fractures, factors influencing fracture healing, and disuse atrophy of the skeleton.

1733
Budy, A. M. DISTRIBUTION OF RADIOACTIVE ESTRONE 16-C^{14} IN MICE. Fed. Proc., Balt., 1953, 12: 306. An abstract.

1733a
Hevesy, G. [C.] SKELETON METABOLISM. IN HIS: RADIOACTIVE INDICATORS; THEIR APPLICATION IN BIOCHEMISTRY, ANIMAL PHYSIOLOGY, AND PATHOLOGY. New York, Interscience Publishers, 1948, p. 409-444. 74 refs.

1734
Mansfield, R. D. NORMAL BONE METABOLISM. Hosp. News, Wash., 1940, 7: No. 13, 1-10. 19 refs. A survey of current knowledge of normal bone metabolism directed to those concerned with bone diseases.

1735
Rogers, H. J. and Weidman, S. M. METABOLISM OF ALVEOLAR BONE. Brit. Dent. J., 1951, 90: 7-10. 7 refs. Discussion: p. 10. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 28017.

1736
Stein, I. BONE METABOLISM. Surg. Clin. N. America, Philadelphia No., Dec. 1953, 1745-1757. 12 refs. A short review discussing structure, growth, formation and normal and abnormal metabolism of bone as well as those disease factors involving defect in supply of minerals, vitamin or hormone.

1737
Todd, T. W. THE RECORD OF METABOLISM IMPRINTED ON THE SKELETON, (CHARLES ALBERT BRACKETT LECTURE). Am. J. Orthodont., 1938, 24: 811-826. 31 refs.

See:

345	369	1024	1151	1265
1349	1362	2023	2787	2848
2947				

METABOLISM - SULPHUR

1738
Dziewiatkowski, D. D. RATE OF EXCRETION OF RADIOACTIVE SULFUR AND ITS CONCENTRATION IN SOME TISSUES OF THE RAT AFTER INTRAPERITONEAL ADMINISTRATION OF LABELED SODIUM SULFATE. J. Biol. Chem., 1949, 178: 197-202. 5 refs. Abstracted in: Biol. Abstr., Balt., 1949, 23: No. 23200. "In contrast to the rapid fall observed in the liver and blood, the concentration of the S^{35} was found to increase until about the 8th hour in bone and until about the 24th hour in bone marrow. The subsequent fall in the S^{35} concentration of the bone and bone marrow was also slower than that in blood, liver, and brain."

1739
Dziewiatkowski, D. D. UTILIZATION OF SULFATE SULFUR IN THE RAT FOR THE SYNTHESIS OF CYSTINE. J. Biol. Chem., 1954, 207: 181-186. 15 refs. Abstracted in: Chem. Abstr., 1954, 48: 5995^{i}. "...S^{35} was found to be present to a small extent in the cystine isolated from the skin plus hair, the skeleton plus musculature, and in the internal organs."

1740
Layton, L. L. QUANTITATIVE DIFFERENTIAL FIXATION OF SULFATE FY TISSUES MAINTAINED IN VITRO. I. SULFATE FIXATION AS A FUNCTION OF AGE FOR EMBRYONIC TISSUES. Cancer, Phila., 1950, 3: 725-734. 25 refs. Abstracted in: Chem. Abstr., 1950, 44: 8475^{b}.

1741
Layton, L. L., Frankel, D. R. and Scapa, S. MATERNAL SULFATE UTILIZED BY MAMMALIAN EMBRYOS AND SUCKLING YOUNG. Arch. Biochem., N. Y., 1950, 28: 142-144. 6 refs. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 561. "Sulfate from the maternal organism is apparently transferred across the placental barrier and utilized by the embryo for tissue synthesis. It is secreted in the milk and utilized by the suckled young. The relative fixation values, expressed in counts 100 mg. wet tissue, as $BaS^{35}O_4$ in 80 mg. $BaSO_4$ carrier, were, for embryos: entire femur, 2700; aorta, 1000; skeletal muscle, 290; heart ventricle, 80; for suckled young: condyle of tibia, 3500; shaft of tibia, 280; aorta, 35; heart ventricle, 17." - Biol. Abstr.

METABOLISM, INORGANIC

see also METABOLISM; TRACE ELEMENTS and subdivisions

1742
Armstrong, W. D. and Barnum, C. P. CONCURRENT USE OF RADIOISOTOPES OF CALCIUM AND PHOSPHORUS IN THE STUDY OF THE METABOLISM OF CALCIFIED TISSUES. J. Biol. Chem., 1948, 172: 199-204. 14 refs. Abstracted in: Chem. Abstr., 1949, 43: 3856^{i}. "The uptake and retention of both radiocalcium and radiophosphorus by calcified tissues stand in the following decreasing order: femur marrow, femur epiphysis, femur diaphysis, incisor tooth dentin, incisor tooth enamel, molar tooth dentin, and molar tooth enamel. Evidence has been presented that under conditions in vivo calcified tissues do not all exchange calcium and phosphorus in the same proportion."

1743
Aylward, F. N. and Blackwood, J. H. FASTING AND REALIMENTATION IN THE RUMINANT. I. THE EFFECT OF FOOD AND FASTING ON CERTAIN BLOOD CONSTITUENTS. II. CALCIUM AND PHOSPHORUS METABOLISM DURING FASTING AND DURING REALIMENTATION FOLLOWED BY FASTING. Biochem. J., Lond., 1936, 30: 1819-1832. 50 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1937-38, 7: No. 620.

1744
Bartolomucci, E. RICERCHE SPERIMENTALI SUL COMPORTAMENTO DEL CALCIO FOSFORO E DELL'ATTIVITÀ FOSFATASICA NELLA DERIVAZIONE TOTALE ESTERNA DELLA BILE. Sperimentale, 1940, 94: 573-582. 19 refs. Abstracted in: Chem. Abstr., 1943, 37: 3164^{7}. "Dogs with a biliary fistula show a constant drop in the Ca and P in the blood. The drop in Ca is greatest at the beginning of the experiment and is followed by an increase, without, however, attaining normalcy. The decrease of P is progressive. The phosphatase in the plasma is increased, also that in the bones, while the Ca content of the bones decreases." - Chem. Abstr.

1745
Bélanger, L. F. AUTORADIOGRAPHIC VISUALIZATION OF IN VITRO EXCHANGE IN TEETH, BONES, AND OTHER TISSUES, UNDER VARIOUS CONDITIONS. J. Dent. Res., 1953, 32: 168-176. 19 refs. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 32230; Nutrit. Abstr., Aberdeen, 1953, 23: No. 4790; Chem. Abstr., 1953, 47: 7059^{i}.

1746
Benjamin, H. R. THE FORMS OF THE CALCIUM AND INORGANIC PHOSPHORUS IN HUMAN AND ANIMAL SERA. II. THE NATURE AND SIGNIFICANCE OF THE FILTRABLE, ADSORBABLE CALCIUM-PHOSPHORUS COMPLEX. J. Biol. Chem., 1933, 100: 57-78. 23 refs. Abstracted in: Chem. Abstr., 1933, 27: 2480. "It is suggested that normal calcification of bone involves the adsorption of the calcium-phosphorus complex of the serum by cartilage in the region of the epiphyseal junction. When, as in rickets, the concentration of this complex is reduced below a certain level, adsorption, and consequently calcification, is retarded."

1747
Bogdonoff, M. D., Shock, N. W. and Nichols, M. P. CALCIUM, PHOSPHORUS, NITROGEN, AND POTASSIUM BALANCE STUDIES IN THE AGED MALE. J. Geront., 1953, 8: 272-288. Abstracted in: Chem. Abstr., 1953, 47: 11422b; Nutrit. Abstr., Aberdeen, 1954, 24: No. 799; Brit. Abstr., 1954, p. 167. "Elderly men in positive N balance required 850 mg. per day of Ca, about the same as the needs of younger men. These elderly subjects were able to retain Ca, P, N, and K, suggesting that protoplasm was being built up. Elderly males with osteoporosis, however, retained only a little Ca when large amounts were given, suggesting that some defect in osteoid formation or its calcification was present." - Brit. Abstr.

1748
Carlsson, A. ON THE MECHANISM OF THE SKELETAL TURNOVER OF LIME SALTS. Acta physiol. scand., 1952, 26: 200-211. Addendum, p. 211. 17 refs. Abstracted in: Excerpta med., Sect. 2, 1953, 6: No. 2795. Radiocalcium was administered to rats and the uptake in the incisors studied during the next 18 hours. The process was noted to have been irreversible and no return of radiocalcium from incisors to blood was demonstrated. "The results suggested a diurnal rhythmic variation in calcium uptake" and were considered to support the view of a close relationship between the renewal of bone salt and that of bone tissue. The article is preceded by a review of the literature.

1749
Carlsson, A. TRACER EXPERIMENTS ON THE EFFECT OF VITAMIN D ON THE SKELETAL METABOLISM OF CALCIUM AND PHOSPHORUS. Acta physiol. scand., 1952, 26: 212-220. 17 refs. Abstracted in: Chem. Abstr., 1953, 47: 715d. A study was made with rats. Eighteen hours after administration of isotopes, the tracers indicated that uptake of lime salts was favored by vitamin D in the long bones more than in the incisors, although the vitamin had produced an increased ash weight of the incisors and no increase in ash weight of the bones. It was concluded that vitamin D favored the removal of lime slats from the bones. The article is preceded by a review of the literature.

1750
Claassen, V. and Wöstmann, B. S. J. VERSCHILLEN TUSSEN DE OPNEMING VAN CA^{45} EN P^{32} IN HET SKELET VAN JONGE RATEN NA INTRAVENEUZE INJECTIE. Chem. wbl., Amst., 1954, 50: 18-21. 5 refs. Abstracted in: Chem. Abstr., 1954, 48: 5988f.

1751
Dallemagne, M. J. RÉFLEXIONS SUR LE MÉTABOLISME MINÉRAL DES TISSUS CALCIFIÉS. Rev. méd., Liége, 1946, 1: 77-79.

1752
Davis, G. K. and Loosli, J. K. MINERAL METABOLISM (ANIMAL). Annual Rev. Biochem., 1954, 23: 459-480. 248 refs.

1753
Duckworth, J. and Godden, W. THE LABILITY OF SKELETAL MAGNESIUM RESERVES. THE INFLUENCE OF RATES OF BONE GROWTH. Biochem. J., Lond., 1941, 35: 816-823. 17 refs. Abstracted in: Chem. Abstr., 1942, 36: 1998; Biol. Abstr., Balt., 1942, 16: No. 6506. "The net quantity of Mg liberated from the skeleton and its apparent rate of mobilization were related to the rate of bone growth. The skeleton contained the main reserve of Mg which was highly labile. The two-phase nature of the syndrome of Mg deficiency was shown to be explicable on the basis of mobilization, and then cessation of mobilization, of the skeletal reserves. A mechanism for the removal and return of skeletal Mg was suggested." - Chem. Abstr.

1754
Engel, M. B., Joseph, N. R. and Catchpole, H. R. EQUILIBRIUM OF CALCIUM AND OTHER IONS IN CONNECTIVE TISSUES. Tr. Conf. Metab. Interrelat., 5.Conf., 1953, 105-118. Conference discussion: p. 113-118. 13 refs.

1755
Ercoli, N. and Lewis, M. N. THE AGE FACTOR IN THE RESPONSE OF BONE TISSUE TO ALIZARIN DYES AND THE MECHANISM OF DYE FIXATION. Anat. Rec., 1943, 87: 67-76. 25 refs. Adult and immature white mice were used in the experiments.

1756
Falkenheim, M., Neuman, W. F. and Hodge, H. C. EXCHANGE OF CALCIUM AND PHOSPHORUS AS THE MECHANISM OF RADIOISOTOPE ADSORPTION OF BONES AND TEETH. J. Dent. Res., 1947, 26: Proc., 460. An abstract.

1757
Follis, R. H., Jr. DISEASES, PARTICULARLY OF BONE, ASSOCIATED WITH DERANGEMENTS OF CALCIUM AND PHOSPHORUS METABOLISM. Tr. Conf. Metab. Interrelat., 1953, 5.Conf., 196-244. Approx. 40 refs.

1758
Greenberg, D. M THE DYNAMICS OF CALCIUM AND PHOSPHATE METABOLISM. Univ. California Pub. Physiol., 1947, 8: No. 18, 277-292. 93 refs. This review is devoted to the relation of calcium and phosphate ions to bone.

1759
Greenberg, D. M. MINERAL METABOLISM, MAGNESIUM, AND PHOSPHORUS. Annual Rev. Biochem., 1939, 8: 269-300. 175 refs. For bone, see particulary, p. 273-276.

1760
Hansen, I. G. and Mollgaard, H. INVESTIGATIONS OF THE EFFECT OF LACTIC ACID ON THE METABOLISM OF CALCIUM AND PHOSPHORUS. Acta physiol. scand., 1947, 14: 158-170. 4 refs. Abstracted in: Chem. Abstr., 1948, 42: 651c. "Strong lactic acid fermentation in the intestines of the pig effect an increase of the absorption of calcium and phosphate and by that way a superior bone formation. It further promotes health and growth of young pigs considerably."

1761
Hevesy, G. C. RATE OF RENEWAL OF THE FISH SKELETON. Acta physiol. scand., 1945, 9: 234-247. "At least 95 percent of the skeleton were found to remain unchanged during the experiment [as long as 30 days]. The rate of renewal of the fish skeleton is thus much lower than that of the mammalian skeleton."

1762
Hevesy, G. C., Levi, H. B. and Rebbe, O. H. RATE OF REJUVENATION OF THE SKELETON. Biochem. J., Lond., 1940, 34: 532-537. 14 refs. Abstracted in: Biol. Abstr., Balt., 1940, 14: No. 16021; Chem. Abstr., 1940, 34: 5518[3].

1763
Karcher, H. DER CALCIUM- UND PHOSPHORSTOFFWECHSEL BEI DER NORMALEN UND GESTÖRTEN KNOCHENBRUCHHEILUNG SOWIE IN FRISCHEN UND KONSERVIERTEN TRANSPLANTATEN. EIN NACHWEIS MIT DEN RADIOAKTIVEN ISOTOPEN P^{32} UND CA^{45}. Arch. klin. Chir., 1953, 275: 1-49. 47 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1954, 24: No. 815; Chem. Abstr., 1953, 47: 10651[g].

1764
*Krupski, A., Uehlinger, E. and Almasy, F. UNTERSUCHUNGEN ÜBER DEN KALZIUM-PHOSPHORSTOFFWECHSEL UND HISTOLOGISCHE KNOCHENBEFUNDE. Schweiz. Arch. Tierh., 1939, 81: 223-232.

1765
Lacroix, P., Devis, R. and Schicks, E. DISTRIBUTION OF RADIOPHOSPHORUS IN THE LONG BONES OF ADULT RABBITS. Experientia, Basel, 1952, 8: 113-114. 12 refs. Abstracted in: Biol. Abstr., Balt., 1952, 26: No. 20531; Nuclear Sc. Abstr., 1952, 6: No. 3209.

1766
METABOLISM OF PHYTIN LABELED WITH P^{32}. Nutrit. Rev., 1951, 9: 111-112. A short review.

1767
THE MOBILITY OF BONE. [AN EDITORIAL] J. Am. M. Ass., 1947, 135: 514. 3 refs.

1768
Morgan, A. F., Garrison, E. A., Householder, H., Hansen, A. M., Seberger, M. V., Watenpaugh, J. T., Felsher, A. and Long, M. L. THE EFFECT OF ACID, NEUTRAL, AND BASIC DIETS ON THE CALCIUM AND PHOSPHORUS METABOLISM OF DOGS. Univ. California Pub. Physiol., 1934, 8: No. 7, 61-106. Abstracted in: Biol. Abstr., Balt., 1935, 9: No. 13705.

1769
Munro, H. N. and Cumming, M. C. NITROGEN METABOLISM AFTER FRACTURE. Nature, Lond., 1948, 161: 560-561. 3 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1948-49, 18: No. 2123. In this study with rats it was found that nitrogen lost from the injured limb accounts for only a small part of the nitrogen excreted after fracture.

1770
Patwardhan, V. N. and Chitre, R. G. STUDIES IN CALCIUM AND PHOSPHORUS METABOLISM. II. THE EFFECT OF TOXIC DOSES OF VITAMIN D ON THE ASH, CA, AND P CONTENT OF THE BONES AND ON THE EXCRETION OF N, CA, AND P IN THE ALBINO RATS. Ind. J. M. Res., 1938, 26: 447-458 13 refs. Abstracted in: Chem. Abstr., 1939, 33: 6921[2]; Biol. Abstr., Balt., 1939, 13: No. 309.

1771
Patwardhan, V. N., Chitre, R. G. and Sukhatankar, D. R. STUDIES IN CALCIUM AND PHOSPHORUS METABOLISM. PART VII. THE IONIC PRODUCTS OF CALCIUM PHOSPHATES IN EXPERIMENTALLY INDUCED VITAMIN D DEFICIENCY. Ind. J. M. Res., 1945, 33: 195-202. 18 refs.

1772
Pavalnský, R. KOSTNÍ ATROFIE SE ZRETELEM NA VÝMENU MINERÁLNÍCH LATEK A ŽIVOT KOSTI. [BONE ATROPHY WITH SPECIAL REFERENCE TO MINERAL METABOLISM AND PHYSIOLOGY OF THE BONE] Sborn. lék., 1946, 48: 344-352; 1947, 48: 353-405. 4 p. refs. English and French summaries, p. 391-402. A review.

1773
Reinach, N., Louw, J. G. and Groenewald, J. W. THE EFFECT OF BODY STORES AND OF METHOD OF SUPPLEMENTATION ON THE EFFICIENCY OF CALCIUM AND PHOSPHORUS UTILIZATION BY SHEEP. Onderstepoort J. Vet. Res., 1952, 25: No. 4, 85-91. 7 refs. Abstracted in: Biol. Abstr., Balt., 1954, 28: No. 3014.

1774
Robbins, C. L. THE EFFECT OF DINITROPHENOL ON CALCIUM AND PHOSPHORUS METABOLISM. J. Nutrit., 1935, 10: 187-191. 9 refs. Abstracted in: Biol. Abstr., Balt., 1936, 10: No. 13051.

1775
Schmidt, C. L. A. and Greenberg, D. M. OCCURRENCE, TRANSPORT AND REGULATION OF CALCIUM, MAGNESIUM AND PHOSPHORUS IN THE ANIMAL ORGANISM. Physiol. Rev., 1935, 15: 297-434. Approx. 650 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1935-36, 5: No. 3006. See particularly p. 380-415 for calcium, magnesium and phosphorus in the skeleton and the relation of vitamins and the endocrine glands to the metabolism of these ions.

1776
Schottě, O. E. and Lamy, F. CALCIUM CONTENT IN THE NORMAL AND IN THE REGENERATING UPPER ARM OF TRITURUS VIRIDESCENS. J. Exp. Zool., 1953, 122: 97-117. 16 refs. Abstracted in: Excerpta med., Sect. 1, 1954, 8: No. 175; Biol. Abstr., Balt., 1953, 27: No. 22392.

1777
Sehra, K. B. and Ahmad, B. STUDIES ON CALCIUM AND PHOSPHORUS METABOLISM. III. HEPATIC INEFFICIENCY AND RICKETS. Ind. J. M. Res., 1945, 33: 115-120. 28 refs. Abstracted in: Biol. Abstr., Balt., 1946, 20: No. 2533. "In order to study the relationship between liver function, blood serum phosphatase and bone development, the degree of bone calcification in guinea pigs which were fed CCl_4 to produce liver damage has been examined. It was observed that the degree of calcification was lower in animals with liver damage than that of normal controls. The addition of oats to the diet of these animals further aggravated the decalcifying action resulting from liver damage. The role of phosphatase in the mineral metabolism of the skeleton is discussed." - Biol. Abstr.

1778
Sendroy, J., Jr. MINERAL METABOLISM. Annual Rev. Biochem., 1945, 14: 407-430. 187 refs. See particularly p. 419-424 for review of the literature pertaining to bone.

1779
Theiler, A., Du Toit, P. J. and Malan, A. I. STUDIES IN MINERAL METABOLISM. XXXVIII. CALCIUM AND PHOSPHORUS IN THE NUTRITION OF GROWING PIGS. Onderstepoort J. Vet. Sc., 1937, 9: 127-164. 7 refs. Abstracted in: Chem. Abstr., 1938, 32: 5040[2].

1780
Toverud, K. U. and Toverud, G STUDIES ON THE MINERAL METABOLISM DURING PREGNANCY AND LACTATION. II. Biochem. J., Lond., 1932, 26: 1424-1434. pl. 5 refs. Abstracted in: Chem. Abstr., 1933, 27: 1038.

METABOLISM, INORGANIC (Continued)

1781
Tyler, C. STUDIES OF CALCIUM AND PHOSPHORUS METABOLISM IN RELATION TO THE CHEMICAL STRUCTURE OF BONE. I. EXPERIMENTS WITH LAYING BIRDS. Biochem. J., Lond., 1940, 34: 202-212. 10 refs. Abstracted in: Chem. Abstr,, 1940, 34: 4135[4]; Biol. Abstr., Balt., 1940, 14: No. 11913.

1782
Tyler, C. STUDIES OF CALCIUM AND PHOSPHORUS METABOLISM IN RELATION TO THE CHEMICAL STRUCTURE OF BONE. II. EXPERIMENTS WITH MOULTING BIRDS. Biochem. J., Lond., 1940, 34: 1427-1430. 1 ref. Abstracted in: Biol. Abstr., Balt., 1941, 15: No. 12159. "The changes in the Ca of the $Ca_3(PO_4)_2$ of bone and the residual Ca of the bone of two birds laying just prior to moulting and of one of the birds in moult are discussed. It is shown that these changes are substantially similar to the changes taking place in birds in full lay."

1783
Watanabe, T. and Suzuki, T. MORPHOLOGISCHE STUDIEN ÜBER DIE VERSCHIEDENEN EINFLÜSSE AUF DEN KALKSTOFFWECHSEL DES KNOCHENS. Tr. Soc. path. jap., 1933, 23: 329-331.

See:

236	539	1148	1203	1220
1257	1263	1361	1417	1458
1490	1507	1590	1998	1999
2226	2228a	2241	2328	2386
2620	2740	2772	2842	2887
2964				

METABOLISM, INORGANIC - CALCIUM

see also METABOLISM, INORGANIC

1784
Armstrong, W. D. THE MAGNITUDE OF THE TURNOVER OF CALCIUM BETWEEN BONE AND INTERSTITIAL FLUID. Tr. Conf. Metab. Interrelat., 1953, 5.Conf., 46-52. Conference Discussion: p. 50-52.

1785
Armstrong, W. D., Johnson, J. A., Singer, L. Lienke, R. I. and Premer, M. L. RATES OF TRANSCAPILLARY MOVEMENT OF CALCIUM AND SODIUM AND OF CALCIUM EXCHANGE BY THE SKELETON. Am. J. Physiol., 1952, 171: 641-651. 21 refs. Abstracted in: Chem. Abstr., 1953, 47: 3959[h]. Dogs were given radiocalcium and radiosodium and the quantities of these isotopes present in plasma and blood estimated separately at intervals. Methods are described, and evidence is presented that calcium-binding by plasma proteins does not impede the transcapillary movement of calcium. The rates of this movement of calcium and sodium are calculated and the quantities of skeletal calcium and tissue sodium exchanged up to 340 minutes are estimated.

1786
Arnold, J. S. IN VITRO SOLUBILITY AND ION EXCHANGE OF IN VIVO-DEPOSITED CA-45 IN BONE. Fed. Proc., Balt., 1953, 12: 383. An abstract.

1787
Bellin, J and Laszlo, D. METABOLISM AND REMOVAL OF CA^{45} IN MAN. Science, 1953, 117: 331-334. 20 refs. Abstracted in: Chem. Abstr., 1953, 47: 8200[d]. A single dose of $Ca^{45}Cl_2$[4] was injected rapidly into the anticubital vein of fasting controlled patients. Blood and urine analyses were made at frequent intervals and stool analyses daily. It was found that the Ca^{45} rapidly disappeared from the blood stream, appeared in the excreta and was deposited in bone. The rate at which these processes occur is believed to vary depending on the state of bone metabolism and to be, therefore, a useful indicator of skeletal activity. When the Ca^{45} levels approximated equilibrium in serum and excreta, sodium salt of ethylene diamine tetracetic acid was infused intravenously and the following increase in Ca^{45} excretion was studied as an indication of the rates of skeletal demineralization.

1788
Bessey, O. A., King, C. G., Quinn, E. J. and Sherman, H. C. THE NORMAL DISTRIBUTION OF CALCIUM BETWEEN THE SKELETON AND SOFT TISSUES. J. Biol. Chem., 1935, 111: 115-118. 5 refs. Abstracted in: Biol. Abstr., Balt., 1936, 10: No. 13021; Chem. Abstr., 1935, 29: 7431[1]; Nutrit. Abstr., Aberdeen, 1935-36, 5: No. 2845.

1789
Bleyer, B. and Fischler, F. ZUR FRAGE DER BEEINFLUSSBARKEIT DES GESTÖRTEN SKELETT-MINERALSTOFFWECHSELS DURCH CA-MG-SALZE DER INOSITPHOSPHORSÄURE IM VEREIN MIT BIOKATALYTISCH WIRKSAMEN PFLANZENEXTRAKTEN. Biochem. Zschr., 1931, 239: 224-231. 4 refs. Abstracted in: Chem. Abstr., 1931, 25: 5920.

1790
Carlsson, A. METABOLISM OF RADIOCALCIUM IN RELATION TO CALCIUM INTAKE IN YOUNG RATS. Acta pharm. tox., Kbh., 1951, 7: Suppl. 1. 74p. 52 refs. Abstracted in: Biol. Abstr., 1953, 27: No. 451; Chem. Abstr., 1951, 45: 9646[a]. Contents: Introduction.- The method. - The effect of Ca deprivation on the absorption and on the excretion of radiocalcium. - Effect of parenteral administration of Ca on the absorption of Ca^{45} from the digestive tract. - Absorption and skeletal metabolism of radiocalcium in relation to age and growth. - The skeletal distribution of Ca^{45} in rachitic rats. - Absorption and skeletal distribution of radiocalcium after oral administration of labelled calcium in varying doses. - The role of vitamin D in the absorption and skeletal distribution of radiocalcium at different levels of Ca in the diet. - Skeletal distribution of Ca^{45} as observed at different intervals after the administration of labelled Ca. - Summary. - References.

1791
Carlsson, A., Lindqvist, M. and Magnusson, T. EXPERIMENTS WITH RADIOCALCIUM ON THE INTERRELATIONSHIPS BETWEEN VITAMIN D AND DIETARY CALCIUM AND PHOSPHORUS. Acta pharm. tox., Kbh., 1953, 9: 32-40. 18 refs. Abstracted in: Chem. Abstr., 1953, 47: 11380[c]; Biol. Abstr., Balt., 1953, 27: No. 24666. "Results on the uptake of Ca^{45} in the skeleton indicated an extra-intestinal effect of vitamin D."

1792
Comar, C. L. SKELETAL METABOLISM STUDIES WITH RADIOCALCIUM. IN: THE ROLE OF ATOMIC ENERGY IN AGRICULTURAL RESEARCH. PROCEEDINGS OF THE FOURTH ANNUAL OAK RIDGE SUMMER SYMPOSIUM AUGUST 25-30, 1952. (Comar, C. L. and Hood, S. L., comps.) Oak Ridge, Tenn. Technical Information Service, 1953, p. 225-329. (TID-5115) 12 refs.

1793
Common, R. H. OBSERVATIONS ON THE MINERAL METABOLISM OF PULLETS. III. J. Agr. Sc., Lond., 1938, 28: 347-365. "The experiment suggests that pullets may use up to about one-quarter of their body calcium at the outset of laying for purposes of shell formation. The composition of the inorganic material of the skeleton of pullets may be modified by alterations in their mineral metabolism due to egg production on diets with and without a calcium carbonate supplement. The nature of these modifications and their relationship to calcium metabolism during laying is discussed."

METABOLISM, INORGANIC - CALCIUM (Continued)

1794
Common, R. H. and Hale, R. W. OBSERVATIONS ON THE MINERAL METABOLISM OF PULLETS. VI. THE MOBILIZATION OF BODY CALCIUM FOR SHELL FORMATION. J. Agr. Sc., Lond., 1941, 31: 415-437. 25 refs. "It is suggested that some degree of mobilization of skeletal calcium is a normal feature of shell formation in the fowl, the fraction of bone mineral material mobilized always having a higher Ca:P ratio than the skeleton as a whole, although the actual ratio may vary with the calcium in the diet and with the form in which the calcium is provided."

1795
Common, R. H. OBSERVATIONS ON THE MINERAL METABOLISM OF PULLETS. VII. THE CALCIUM REQUIREMENT OF THE LAYING BIRD. J. Agr. Sc., Lond., 1943, 33: 213-220. 32 refs. Contents: Retention of calcium from the food for laying birds. - Differential retention on day of shell formation and days of no shell formation. - Mobilization of skeletal reserves on high calcium intakes. - Practical considerations. - Summary.

1796
Conway, E. J. THE PHYSIOLOGICAL SIGNIFICANCE OF INORGANIC LEVELS IN THE INTERNAL MEDIUM OF ANIMALS. Biol. Rev. Cambridge Philos. Soc., 1945, 20: 56-72. 63 refs. Abstracted in: Chem. Abstr., 1945, 39: 3797[3].

1797
Cremer, H. D., Herr, W. and Späth, H. ERNÄHRUNGSFAKTOREN BEI ZAHN- UND KNOCHENBILDUNG. I. CA-RESORPTION UND CA-EINLAGERUNG NACH ZUFUHR VERSCHIEDENER MIT ^{45}CA MARKIERTER SALZE. Biochem. Zschr., 1951, 322: 212-220. 5 refs. Abstracted in: Excerpta med., Sect. 2, 1952, 5: No. 6176; Chem. Abstr., 1952, 46: 4078[e].

1798
Fairbanks, B. W. THE RELATION BETWEEN CALCIUM RETENTION AND THE STORE OF CALCIUM IN THE BODY, WITH PARTICULAR REFERENCE TO THE DETERMINATION OF CALCIUM REQUIREMENTS. J. Nutrit., 1936, 11: 551-572. 20 refs.

1799
Fournier, P. L'ABSORPTION DU CALCIUM CHEZ LE RAT ADULTE. III. INFLUENCE DE L'ÉTAT INITIAL DE L'ANIMAL. C. rend. Acad. sc., 1953, 236: 2537-2539. 4 refs. Two groups of adult rats were fed a Ca deficient diet for a short and a long period respectively, and then fed a diet containing 41% Ca. It was noted that the group deprived of Ca for a short time absorbed little Ca when it was made available while the second group of rats absorbed large initial quantities which soon decreased. The question is raised whether this high and quickly reduced absorption of Ca indicates a rapid remineralization of insufficiently calcified bone.

1800
Greenberg, D. M. STUDIES IN MINERAL METABOLISM WITH THE AID OF ARTIFICIAL RADIOACTIVE ISOTOPES. VIII. TRACER EXPERIMENTS WITH RADIOACTIVE CALCIUM AND STRONTIUM ON THE MECHANISM OF VITAMIN D ACTION IN RACHITIC RATS. J. Biol. Chem., 1945, 157: 99-104. 7 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1945-46, 15: No. 238. It was demonstrated that vitamin D promotes absorption of calcium from the digestive tract and that it has a direct action on the mineralization of bone in rachitic animals.

1801
Hodge, H. C., Falkenheim, M. and Emery, E. CALCIUM EXCHANGE IN BONE USING RADIOCALCIUM IN VITRO. Fed. Proc., Balt., 1947, 6: 262. An abstract.

1802
Hodge, H. C., Underwood, E. E. and Falkenheim, M. RATES OF CALCIUM EXCHANGE IN THE SYSTEM; POWDERED BONE IN CALCIUM CHLORIDE SOLUTION. Fed. Proc., Balt., 1950, 9: 286. An abstract. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 4266.

1803
Howard, J. E. METABOLISM OF CALCIUM AND PHOSPHORUS IN BONE. Bull. N. York Acad. M., 1951, 27: 24-41. 72 refs.

1804
Hunter, D. CALCIUM AND PHOSPHORUS METABOLISM. Lancet, Lond., 1930, 218: 897-904; 947-957 and 999-1008. 2 pl. 162 refs.

1805
Jacobs, T. and Govaerts, J. L'UTILIZATION DU RADIOPHOSPHORE POUR L'ETUDE DU METABOLISME DU CALCIUM CHEZ L'EMBRYON DE LA POULE ET LE POUSSIN. Arch. internat. physiol., Par., 1951, 59: 333-340. 4 refs. Abstracted in: Chem. Abstr., 1953, 47: 6508[e]; Nutrit. Abstr., Aberdeen, 1951-52, 21: No. 5151.

1806
Lacroix, P. SUR LE MÉTABOLISME DU CALCIUM DANS L'OS COMPACT DU CHIEN ADULTE. Bull. Acad. méd. Belgique, 1953, 18: 489-495. pl. 15 refs.

1807
Landtman, B. TIEREXPERIMENTELLE UNTERSUCHUNGEN ÜBER DEN CALCIUM- UND PHOSPHORSTOFFWECHSEL IN KNOCHEN MIT BESONDERER BERÜCKSICHTIGUNG DER WIRKUNG DES D-VITAMINS. Acta physiol. scand., 1944, 8: Suppl. 26. 124p. Bibliography: p. 119-124. Abstracted in: Nutrit. Abstr., Aberdeen, 1945-46, 15: No. 1238; Chem. Abstr., 1946, 40: 938[2].

1808
Leriche, R. and Jung, A. DOCUMENTS CONCERNANT L'UTILISATION LOCALE DU CALCIUM PROVENANT D'UN FOYER D'OSTÉOLYSE; ÉTUDE SUR LES MÉCANISMES DE L'OSTÉOGENÈSE. Rev. chir., Par., 1938, 76: 378-381.

1809
Lienke, R. I., Cullen, G. and Armstrong, W. D. STUDIES ON THE EXCRETION AND DISTRIBUTION OF RADIOACTIVE CALCIUM. Tr. Conf. Metab. Interrelat., 1949, 1.Conf., 73-76. 1 ref.

1810
Lontie, P. COMMENT SE DISTRIBUE DANS LE SQUELETTE LE RADIOCALCIUM ADMINISTRÉ AU LAPIN ADULTE. Rev. belge path., 1953, 23: 118-125. 20 refs. English summary. "The fixation of radiocalcium injected in adult rabbits has been measured in as many portions as possible of the long bone... The table shows that the proportional distribution of the radio-activities in a given bone does not change significantly in a period of about two hundred days."

1811
Loreto, C. LA CALCEMIA NEL PERIODO DI GUARIGIONE DELLE FRATTURE. CONTRIBUTO SPERIMENTALE. Arch. farm. sper., 1930-1931, 51: 145-164, 189-192, 217-227. 74 refs. Abstracted in: Chem. Abstr., 1931, 25: 4928.

1812
Nicolaysen, R. THE ABSORPTION OF CALCIUM AS A FUNCTION OF THE BODY SATURATION WITH CALCIUM. Acta physiol. scand., 1943, 5: 200-211. 3 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1943-44, 13: No. 2041.

1813
Nicolaysen, R. and Norbø, R. CALCIUM METABOLISM AND CITRIC ACID. Acta physiol. scand., 1943, 5: 212-214. 3 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1943-44, 13: No. 2041.

METABOLISM, INORGANIC - CALCIUM (Continued)

1814
Nicolaysen, R., Eeg-Larsen, N. and Malm, O. J. PHYSIOLOGY OF CALCIUM METABOLISM. Physiol. Rev., 1953, 33: 424-444. 126 refs. Abstracted in: Biol. Abstr., Balt., 1954, 28: No. 10495. See particularly p. 433-439 for review of the literature on the skeleton.

1815
Randoin, L. and Causeret, J. LE CALCIUM EN BIOLOGIE ET DANS L'ALIMENTATION HUMAINE. Bull. Soc. sc. hyg. aliment., Par., 1951, 39: 249-266. A review of the role of calcium in animal life, which considers its distribution in the tissues (including bone), calcium metabolism and calcium deficiency.

1816
Rubin, M., Thomas, R. D., Litovitz, T. A. and Geschickter, C. F. DYNAMICS OF CALCIUM METABOLISM. Tr. Conf. Metab. Interrelat., 1953, 5.Conf., 53-71. Conference discussion: p. 64-71. 16 refs.

1817
Shilling, A. and Laszlo, D. RATE OF URINARY CALCIUM EXCRETION FOLLOWING ITS INTRAVENOUS ADMINISTRATION AS AN INDICATOR OF BONE METABOLISM. Proc. Exp. Biol., N. Y., 1951, 78: 286-289. 3 refs. "Subnormal rates were found in patients with an increased tendency to bone deposition. Increased rates were found in patients with osteolytic activity. The good correlation between these data and metabolic balance studies suggests the usefulness of this test in defining the state of skeletal activity and the effects of therapy thereon."

1818
Singer, L. and Armstrong, W. D. DIETARY RESTRICTIONS AND MOBILIZATION OF 'STABLE' CALCIUM FRACTION OF THE SKELETON. Fed. Proc., Balt., 1953, 12: 268. An abstract.

1819
Singer, L. and Armstrong, W. D. RETENTION AND TURNOVER OF RADIOCALCIUM BY THE SKELETON OF LARGE RATS. Proc. Soc. Exp. Biol., N. Y., 1951, 76: 229-233. 12 refs. Abstracted in: Chem. Abstr., 1951, 45: 5289^{c}. Findings suggest there are two kinds of skeletal calcium, which differ strongly in their rate of turnover and in the period of time over which they fix radiocalcium.

1820
Singer, L., Armstrong, W. D. and Premer, M. L. SKELETAL CALCIUM TURNOVER IN NON-GROWING RATS. Proc. Soc. Exp. Biol., N. Y., 1952, 80: 643-646. 6 refs. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 9665; Chem. Abstr., 1952, 46: 11373^{i}.

1821
Thomas, R. O., Litovitz, T. A., Rubin, M. I. and Geschickter, C. F. DYNAMICS OF CALCIUM METABOLISM. TIME DISTRIBUTION OF INTRAVENOUSLY ADMINISTERED RADIOCALCIUM. Am. J. Physiol., 1952, 169: 568-575. 10 refs. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 461; Nutrit. Abstr., Aberdeen, 1953, 23: No. 659.

1822
Thomson, D. L. THE EFFECT OF AGE AND LOW PHOSPHORUS RICKETS ON THE METABOLISM OF CALCIUM^{45} IN RATS. 130p. University of California Radiation Laboratory, Berkeley, Calif., 1953. (UCRL-2302) References: p. 83-88. Abstracted in: Nuclear Sc. Abstr., 1954, 8: No. 997.

1823
Tomlin, D. H., Henry, K. M. and Kon, S. K. AUTORADIOGRAPHIC STUDIES OF CALCIUM METABOLISM IN BONES AND TEETH. Proc. Nutrit. Soc., Cambr., 1953, 12: iv. 1 ref. An abstract.

1824
Underwood, E. [E.], Fisch, S. and Hodge, H. C. METABOLISM OF CALCIUM IN NORMAL, RACHITIC AND VITAMIN D-TREATED RATS AS EVIDENCED BY RADIOCALCIUM CA^{45} STUDIES. Am. J. Physiol., 1951, 166: 387-393. 21 refs. Abstracted in: Biol. Abstr., Balt.,1952, 26: No. 432; Nuclear Sc. Abstr., 1951, 5: No. 6106. "The experiments suggest that vitamin D in rachitic rats increases Ca absorption of Ca from the gastro-intestinal tract, aids in mobilizing inorganic P from organic sources and locally accelerates the mineralization of bone. Active healing of rachitic bone, as shown by the upswing in the curve of deposition of Ca^{45}, begins between the 48th and 72d hour after the administration of the vitamin." - Biol. Abstr.

See:

418	987	1017	1119	1124
1148	1244	1256	1258	1259
1337	1338	1339	1340	1351
1365	1403	1418	1431	1495
1541	1749	1865	2330	2331
2652	2682	2687	2688	2689
2700	2701	2708	2874	2879
2890	2907			

METABOLISM, INORGANIC - CARBONATE

1825
Armstrong, W. D. and Schubert, J. STUDIES ON THE TURNOVER OF CARBON IN CALCIFIED TISSUES. Tr. Conf. Metab. Interrelat., 1949, 1.Conf., 77-84. 3 refs.

1826
Armstrong, W. D., Schubert, J. and Lindenbaum, A. DISTRIBUTION OF RADIOACTIVE CARBON ADMINISTERED AS CARBONATE IN THE BODY AND EXCRETA OF MATURE RAT. Proc. Soc. Exp. Biol., N. Y., 1948, 68: 233-240. 19 refs. Abstracted in: Chem. Abstr., 1948, 42: 8292^{g}.

1827
Armstrong, W. D., Schubert, J. and Lindenbaum, A. THE DISTRIBUTION OF RADIOACTIVE CARBON (C^{14}) IN A MATURE RAT RECEIVING INTRAPERITONEAL INJECTIONS OF SODIUM CARBONATE LABELLED WITH RADIOACTIVE CARBON (C^{14}). Tr. Conf. Metab. Aspects Convalesc., 1947, 16. meet., 9-25. 14 refs. Abstracted in: Chem. Abstr., 1949, 43: 7567^{e}.

1828
Armstrong, W. D., Schubert, J. and Lindenbaum, A. FURTHER WORK ON THE UPTAKE OF CARBON^{14} BY BONES AND OTHER TISSUES OF THE RAT. Tr. Conf. Metab. Aspects Convalesc., 1948, 17. meet., 67-78. 8 refs.

1829
Bloom, W., Curtis, H. J. and McLean, F. C. DEPOSITION OF C^{14} IN BONE. Science, 1947, 105: 45. 1 ref. Autoradiographs indicate "that C^{14} injected as carbonate appears primarily in those areas occupied by pre-existing bone. It does not appear in appreciable quantities in the areas of most recently deposited bone salt."

METABOLISM, INORGANIC - CARBONATE (Continued)

1830
Greulich, R. C. and Leblond, C. P. RADIOAUTOGRAPHIC VISUALIZATION OF RADIOCARBON IN THE ORGANS AND TISSUES OF NEWBORN RATS FOLLOWING ADMINISTRATION OF C^{14}-LABELLED BICARBONATE. Anat. Rec., 1953, 115: 559-585. 2 pl. 24 refs. Rats were sacrificed at 4, 24, and 72 hours after administration of C^{14}-labelled bicarbonate. Radioautographic reactions were observed in all organs and tissues at the three time intervals. In cartilage cells, the cytoplasm at 4 hours showed an intense reaction, at 24 hours the cellular reaction was absent but the matrix had become reactive, while at 72 hours only the matrix remained reactive. In bones, the periosteal trabeculae and the subepiphyseal spicules gave sharp reactions at 4 hours, the reactive areas appearing to be displaced inwardly with time. In incisor teeth, the layer of pre-dentin immediately adjacent to the odontoblasts and the pre-enamel exhibited a reaction at 4 hours, the enamel less intense than the dentin. By 72 hours the pre-dentin reaction had moved outwards in the dentin itself, close to the dentino-enamel junction.

1831
Kornberg, H. L., Davies, R. E. and Wood, D. R. THE METABOLISM OF ^{14}C-LABELLED BICARBONATE IN THE CAT. Biochem. J., Lond., 1952, 51: 351-357. 23 refs. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 431. At the end of 5 hours, 80% of the injected C^{14} was expired, 3.1% was incorporated in the urea; at the end of 4 hours, 6% was present in bone (the carbon of which exchanges relatively slowly with blood carbonates) and about 1% in the blood, the muscles and the viscera.

1832
Nakao, A. and Buchanan, D. L. STUDIES ON THE PHYSIOLOGICAL STATUS OF BONE CARBONATE. Fed. Proc., Balt., 1952, 11: 111-112. An abstract. Abstracted in: Biol. Abstr., Balt., 1952, 26: No. 20532.

1833
Skipper, H. E., Nolan, C. and Simpson, L. STUDIES ON THE HAZARD INVOLVED IN USE OF C^{14}. III. LONG TERM RETENTION IN BONE. J. Biol. Chem., 1951, 189: 159-166. 7 refs. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 22819. "As judged from autoradiographs made from long bones of mice injected with $NaHC^{14}O_3$, the rate of turnover of carbonate C by various areas in the bone cross-section may be listed as follows: marrow and epiphyseal cartilage > metaphysis of the growing end > epiphysis and the non-growing end > bone shaft (diaphysis). After 4 months the greatest part of the injected radioactive carbon can be found in the bone. The approximate per cent of the injected dose retained in the skeleton was 0.25 at the end of 24 hours, 0.03 at the end of 1 month, 0.02 at the end of 6 months, and 0.01 at the end of 1 year."

METABOLISM, INORGANIC - PHOSPHORUS

see also METABOLISM, INORGANIC

1834
Angrist, A. A., Schwarz, A. W., Brodie, S. S. and Shapiro, A. J. STUDY OF EARLY PHASES OF CALCIFICATION IN BONE WITH RADIOACTIVE PHOSPHORUS. Bull. Hosp. Joint Dis., N. Y., 1951, 12: 87-109. 36 refs. Abstracted in: Chem. Abstr., 1953, 47: 751d.

1835
Armstrong, W. D. PHOSPHORUS METABOLISM IN THE SKELETON. IN: PHOSPHORUS METABOLISM; A SYMPOSIUM ON THE ROLE OF PHOSPHORUS IN THE METABOLISM OF PLANTS AND ANIMALS. (McElroy, W. D. and Glass, B., eds.) Balt., Johns Hopkins Press, 1952, 2: 698-731. Discussion: p. 727-731. 113 refs.

1836
Armstrong, W. D. TURNOVER OF BONE MEASURED WITH RADIOPHOSPHORUS. Fed. Proc., Balt., 1947, 6: 235. An abstract.

1837
Bernhard, K. and Brubacher, G. UBER DIE BETEILIGUNG DES WACHSENDEN UND KONSOLIDIERTEN HIRSCHGEWEIHES AM PHOSPHATSTOFFWECHSEL. EIN BEITRAG ZUR KENNTNIS DES GEWEIHWACHSTUMS. Hoppe Seyler Zschr., 1952, 290: 237-246. 5 refs.

1838
Caputo, V., Ström, L. and Tessarolo, G. INFLUENZA DELLA VITAMINA D SULLA DISTRIBUZIONE SCHELETRICA DEL RADIOFOSFORO NELLE CAVIE ADULTE. Clin. ortop., Parma, 1953, 5: 69-71. 3 refs. Abstracted in: Excerpta med., Sect. 9, 1954, 8: No. 2152.

1839
Chievitz, O. and Hevesy, G. RADIOACTIVE INDICATORS IN THE STUDY OF PHOSPHORUS METABOLISM IN RATS. Nature, Lond., 1935, 136: 754-755. Data showed that a phosphorus atom remains in the organism about two months. This result was interpreted as indicating that the formation of the bones is a dynamic process involving the continuous replacement of previously lost atoms.

1840
Chievitz, O. and Hevesy, G. STUDIES ON THE METABOLISM OF PHOSPHORUS IN ANIMALS. Danske Videnskab. Selsk. Biol. Meddel., 1937, 13: No. 9. 24p. Studies were made in the normal, pregnant and rachitic rat of the bones, incisors, molars, liver, foeta and placenta.

1841
Claassen, V. and Wöstmann, B. S. J. THE UPTAKE OF INJECTED RADIOACTIVE PHOSPHORUS IN THE SKELETON OF THE GROWING WHITE RAT. I. THE UPTAKE OF INTRAVENOUSLY INJECTED ^{32}P BY RACHITIC AND CONTROL ANIMALS DURING THE FIRST 24 HOURS. Biochim. biophys. acta, Amst., 1953, 12: 432-438. 14 refs. Abstracted in: Chem. Abstr., 1954, 48: 2214c.

1842
Claassen, V. and Wöstmann, B. S. J. THE UPTAKE OF INJECTED RADIOACTIVE PHOSPHORUS IN THE SKELETON OF THE GROWING WHITE RAT. II. THE EFFECT OF CALCIFEROL ON THE RAPID UPTAKE OF ^{32}P BY RACHITIC AND CONTROL ANIMALS. Biochim. biophys. acta, Amst., 1953, 12: 577-583. 8 refs. Abstracted in: Chem. Abstr., 1954, 48: 4653i.

1843
*Claassen, V. and Wöstmann, B. S. J. UPTAKE OF INJECTED RADIOACTIVE PHOSPHORUS IN THE SKELETON OF THE GROWING WHITE RAT. III. METABOLISM OF SKELETAL P32 IN EXPERIMENTS OF LONGER DURATION, PERFORMED WITH RACHITIC AND CONTROL ANIMALS. Biochim. biophys. acta, Amst., 1954, 13: 48-53. Abstracted in: Chem. Abstr. 1954, 48: 5315i.

1844
Claassen, V. and Wöstmann, B. S. J. UPTAKE OF ^{32}P IN THE FEMUR OF GROWING RACHITIC AND NORMAL RATS AS COMPARED WITH THE UPTAKE IN THE TOTAL SKELETON. Biochim. biophys. acta, Amst., 1953, 10: 625-626. 8 refs. Abstracted in: Chem. Abstr., 1953, 47: 7067c

METABOLISM, INORGANIC - PHOSPHORUS (Continued)

1845
Cohn, W. E. and Greenberg, D. M. STUDIES IN MINERAL METABOLISM WITH THE AID OF ARTIFICIAL RADIOISOTOPES. I. ABSORPTION, DISTRIBUTION, AND EXCRETION OF PHOSPHORUS. J. Biol. Chem., 1938, 123: 185-198. 22 refs.

1846
Dols, M. J. L., Jansen, B. C. P., Sizoo, G.J. and de Vries, J. PHOSPHORUS METABOLISM IN NORMAL, RACHITIC AND "TREATED" RATS. Nature, Lond., 1937, 139: 1068. 4 refs. Abstracted in: Chem. Abstr., 1937, 31: 6309[9]. Using radioactive phosphorus isotopes as tracers, a rapid entrance of the active phosphorus into the bones was perceptible in all three groups but no significant differences in extent of the deposition of phosphorus were established.

1847
Dols, M. J. L., Jansen, B. C. P., Sizoo, G.J. and Van der Maas, G. J. DISTRIBUTION OF PHOSPHORUS IN THE LEG BONES OF CHICKENS. Nature, Lond., 1938, 142: 953-954. 2 refs. Abstracted in: Chem. Abstr., 1939, 33: 2561[9]. Both radioactivity measurements and radiographs showed that P metabolism is greater in the bones of rachitic chickens than in those of healthy chickens and in the same bone greater in the epiphyseal than in the diaphyseal part.

1848
*Engfeldt, B. BIOPHYSICAL STUDIES ON BONE TISSUE. II. THE IN VITRO UPTAKE OF RADIOACTIVE PHOSPHATE IN NORMAL AND PAGET BONE. Acta path. microb. scand., 1953, 32: 529-533. Abstracted in: Chem. Abstr., 1953, 47: 10662[e]; Nutrit. Abstr., Aberdeen, 1954, 24: No. 796.

1849
Engfeldt, B., Engström, A. and Zetterström, B. RENEWAL OF PHOSPHATE IN BONE MINERALS. II. RADIOAUTOGRAPHIC STUDIES OF THE RENEWAL OF PHOSPHATE IN DIFFERENT STRUCTURES OF BONE. Biochem. biophys. acta, Amst., 1952, 8: 375-380. 9 refs. "Labelled phosphate, when injected intravenously, is unevenly distributed in bone tissue. Radioautographic and microradiographic examinations have shown that young Haversian systems have the highest uptake of radioactive phosphate. When a system becomes older and the amount of mineral salts approaches a maximum value the uptake of radioactive phosphate becomes very low. The main reason for the rapid initial uptake of labelled phosphate cannot be the occurrence of surface reactions throughout the whole bone tissue."

1850
Falkenheim, M. and Hodge, H. C. PHOSPHATE EXCHANGE IN BONE USING RADIOPHOSPHORUS IN VITRO. Fed. Proc., Balt., 1946, 5: 133. An abstract.

1851
Hahn, L. A., Hevesy, G. C. and Lundsgaard, E. C. THE CIRCULATION OF PHOSPHORUS IN THE BODY REVEALED BY APPLICATION OF RADIOACTIVE PHOSPHORUS AS INDICATOR. Biochem. J., Lond., 1937, 31: 1705-1709. 5 refs. "The ratio between active and normal phosphorus was found to be highest in the kidney, in the muscles and in the liver, and lowest in the bones, especially in the diaphysis."

1852
*Havermann, H. and Scharpenseel, H. W. UNTERSUCHUNGEN ÜBER DIE PHOSPHORAUFNAHME UND-ABLAGERUNG JUNGER SCHWEINE DURCH ETIKETTIERUNG MIT ^{32}P. Arch. Tierernähr., 1952, 2: 327-337. Abstracted in: Nutrit. Abstr., Aberdeen, 1953, 23: No. 3253; Chem. Abstr., 1953, 47: 12561[b]. "Of the total radio-activity 65·84 per cent was found in the skeleton, 18·93 in the flesh, 4·48 in the intestine, 3·5 in the liver and smaller amounts in the blood, bristles, hoof, skin, brain, heart, lungs, pancreas, stomach, spleen, kidneys and bladder." - Nutrit.

1853
Hodge, H. C. and Falkenheim, M. THE ADSORPTION OF PHOSPHATES BY ENAMEL, DENTIN, AND BONE. II. THE ADSORPTION RATES FROM CONCENTRATED SOLUTION. J. Biol. Chem., 1945, 160: 637-638. 1 ref. Abstracted in: Biol. Abstr., Balt., 1946, 20: No. 6407; Chem. Abstr., 1946, 40: 1186[1].

1854
Johansson, E. G. and Hodge, H. C. ADSORPTION OF PHOSPHATES BY BONE, DENTIN AND ENAMEL AFTER PROLONGED EXPOSURE TO PHOSPHATE SOLUTIONS AS SHOWN BY THE RADIOACTIVE ISOTOPE. Fed. Proc., Balt., 1944, 3: 59. An abstract.

1855
Johansson, E. G., Falkenheim, M. and Hodge, H. C. THE ADSORPTION OF PHOSPHATES BY ENAMEL, DENTIN, AND BONE. I. ADSORPTION TIME STUDIED BY MEANS OF THE RADIOACTIVE ISOTOPE. J. Biol. Chem., 1945, 159 129-134. "Powdered bone, dentin, and enamel adsorb marked phosphates from neutral solutions of sodium acid phosphate at 40°C. Increasing amounts of marked phosphate are adsorbed by each of these tissues with increasing exposure times (at least up to 64 hours). Up to 16 hours exposure time, the tissues adsorb phosphate in the order of bone >dentin >enamel. This order is found to be reversed at 64 hours."

1856
LeFevre, M. L. and Bale, W. F. INORGANIC PHOSPHORUS METABOLISM OF RAT BONES AND TEETH AS INDICATED BY THE RADIOACTIVE ISOTOPE. J. Dent. Res., 1939, 18: 265. An abstract.

1857
Manly, M. L. and Bale, W. F. THE METABOLISM OF INORGANIC PHOSPHORUS OF RAT BONES AND TEETH AS INDICATED BY THE RADIOACTIVE ISOTOPE. J. Biol. Chem., 1939, 129: 125-134. 10 refs. Abstracted in: Biol. Abstr., Balt., 1939, 13: No. 14547; Chem. Abstr., 1939, 33: 7364[5].

1858
Manly, R. S., Hodge, H. C. and Manly, M. L. THE RELATION OF THE PHOSPHORUS TURNOVER OF THE BLOOD TO THE MINERAL METABOLISM OF THE CALCIFIED TISSUES AS SHOWN BY RADIOACTIVE PHOSPHORUS. J. Biol. Chem., 1940, 134: 293-299. 3 refs. Abstracted in: Biol. Abstr., Balt., 1940, 14: No. 13093; Chem. Abstr., 1940, 34: 5957[3].

1859
Monetti, G. IL FOSFORO ACIDOSOLUBILE DELL'OSSO RACHITICO. Vitaminologia, 1942, 1: 155-160. 1 ref.

1860
Percival, W. L. and Leblond, C. P. RAPID EXCHANGE OF THE BONE SALTS IN NEWBORN RAT AS DEMONSTRATED WITH RADIOACTIVE PHOSPHORUS. Rev. canad. biol., 1948, 7: 217-235. 4 pl. 13 refs. Abstracted in: Chem. Abstr., 1948, 42: 5978[c]; Nuclear Sc. Abstr., 1948, 1: No. 1058.

1861
Polonovski, M. and Cartier, P. LE PHOSPHORE DANS L'ORGANISME. Bull. Soc. sc. hyg. aliment., Par., 1951, 39: 238-248. A review of the role of phosphorus in animal life, which discusses phosphorus distribution in the tissues (including the calcified tissues) and the metabolism of the phosphates and phosphorylated derivatives.

1862
Shimotori, N. and Morgan, A. F. MECHANISM OF VITAMIN D ACTION IN DOGS SHOWN BY RADIOACTIVE PHOSPHORUS. J. Biol. Chem., 1943, 147: 201-210. 14 refs.

METABOLISM, INORGANIC - PHOSPHORUS (Continued)

1863
Smith, A. H., Kleiber, M,, Black, A. L., Edick, M., Robinson, R. R. and Heitman, H., Jr. DISTRIBUTION OF INTRAVENOUSLY INJECTED RADIO-ACTIVE PHOSPHORUS (P^{32}) AMONG SWINE TISSUES. J. Animal Sc., 1951, 10: 893-901. 5 refs. "In the younger animals, much of the administered phosphate is deposited in the bone, leaving little to be distributed among the soft tissues. In older animals, however, little of the phosphate is deposited in the bone, consequently more of the injected dose is available for distribution among the soft tissues. Thus, the standard specific activity of the tissues tends to increase with increasing age."

1864
Steenbock, H. and Bunkfeldt, R. THE EFFECT OF A VITAMIN D-FREE FAT ON THE ABSORPTION AND RETENTION OF PHOSPHORUS. Arch. Biochem., N. Y., 1951, 32: 309-316. 34 refs. Abstracted in: Biol. Abstr., Balt., 1952, 26: No. 430; Chem. Abstr., 1952, 46: 1633c. "It follows that data on calcification of bone cannot always be used as a criterion of the over-all state of P equilibrium in the animal."

1865
Taylor, T. G. P EXCHANGE IN NEW MEDULLARY BONE OF LAYING PULLETS. J. Bone Surg., 1953, 35B: 495. From proceedings and reports of Bone and Tooth Soc., Casual Communications, meeting, 21 January 1953. Pullets were fed P^{32} continuously for periods from 14 to 27 days. After laying, each bird was killed and the specific activity of P in old (cortical) bone was found to vary between 6.7% and 15.7% of that of new (medullary) bone. In rats fed Ca^{45} for 14 days, the bones of one-month-old rats showed 15% exchange of Ca, of six-month rats 8% and of nine-month rats 5%.

1866
Wojta, H. BEITRAG ZUM PHOSPHORSTOFFWECHSEL IN KNOCHENTRANSPLANTATEN. EINE EXPERIMENTELLE STUDIE MIT VERWENDUNG DES RADIOAKTIVEN ISOTOPS P^{32}. Arch. klin. Chir., 1953, 277: 394-416. 17 refs. Abstracted in: Chem. Abstr., 1954, 48: 4675g.

1867
Zambelli, E. and Campi, L. LA DISTRIBUZIONE DEL RADIOFOSFORO NELLA SOMMINISTRAZIONE INTRAPERITONEALE ED ORALE E LE VARIAZIONI METABOLICHE IN RAPPORTO ALLA DOSE RADIANTE. Arch. sc. med., Tor., 1953, 96: 770-797. 24 refs. Abstracted in: Chem. Abstr., 1954, 48: 4018a.

See:

551	629	988	1185	1260
1264	1300	1351	1460	1503
1749	1803	1804	1807	1977
2002	2331	2688	2689	2772
2907	2923			

METABOLISM, INORGANIC - SODIUM

1868
Bauer, G. C. H. LONG TERM REDISTRIBUTION OF BONE SODIUM STUDIED IN RATS BY MEANS OF NA^{22} RADIO-AUTOGRAPHY. Acta orthop. scand., 1954, 23: 192-197. 10 refs.

1869
Edelman, I. S., James, A. H. and Moore, F. D. THE LOCATION AND THE TURNOVER OF THE SODIUM OF BONE. Tr. Conf. Metab. Interrelat., 1952, 4.Conf., 240-247. Conference discussion: p. 245-247. 9 refs.

1870
Miller, H. and Wilson, G. M. THE MEASUREMENT OF EXCHANGEABLE SODIUM IN MAN USING THE ISOTOPE ^{24}NA. Clin. Sc., Lond., 1953, 12: 97-111. 24 refs. Abstracted in: Chem. Abstr., 1954, 48: 2208b. Gastric juice, skin, muscle, spleen, rib and cerebrospinal fluid were studied. In rib about 1/4 of the bone sodium is available for exchange. In man slightly less that 1/3 of the total exchangeable sodium is in bone.

1871
Odeblad, E. and Boström, H. AN AUTORADIOGRAPHIC STUDY OF THE INCORPORATION OF SULFUR^{35}-LABELED SODIUM SULFATE IN DIFFERENT ORGANS OF ADULT RATS AND RABBITS. Acta path. microb. scand., 1952, 31: 339-344. Abstracted in: Chem. Abstr., 1953, 47: 7338.

See:

239

METABOLISM, ORGANIC

see also METABOLISM

1872
Albright, F., Bartter, F. C., Dempsey, E. F., Forbes, A. P., Henneman, P. H. and Reifenstein, E. C., Jr. SERUM ALBUMIN AND BONE MATRIX. Tr. Conf. Metab. Interrelat., 1953, 5.Conf., 277-305. Conference discussion: p. 302-305. 9 refs.

1873
CITRIC ACID METABOLISM IN BONE. Nutrit. Rev., 1953, 11: 118-120. The experimental literature on the role of citric acid in metabolism is reviewed and from the observations made it is "concluded that the increased concentrations of citrate made available at sites of new bone formation facilitate the deposition of calcium. On the other hand, citrate may, by binding calcium, limit its availability for deposition in bone, or... in excess, may act to mobilize calcium and by this means cause dissolution of bone."

1874
Class, R. N. and Smith, A. H. THE SKELETON AS A SOURCE OF ENDOGENOUS CITRIC ACID. J. Biol. Chem., 1943, 151: 363-368. 12 refs. Abstracted in: Chem. Abstr., 1944, 38: 1551^2. "On the basis of studies of the citric acid balance and of analysis of bone of pair-fed rats... the excess citric acid excreted by the kidney after the administration of sodium bicarbonate and sodium malate does not originate in the skeleton, but is a product of intermediary metabolism."

1875
Fischer, A. AMINO-ACID METABOLISM OF TISSUE CELLS IN VITRO. Nature, Lond., 1948, 161: 1008. Abstracted in: Excerpta med., Sect. 2, 1949, 2: No. 705. For cultivation in vitro of myo- and osteoblasts it was found that cystine is the most essential of the amino-acids and that arginine tryptophane, glutamine and lysine in descending order are of next importance.

1876
Forbes, A. P. STUDIES ON THE RELATION OF THE SERUM ALBUMIN TO THE FORMATION OF BONE MATRIX. J. Clin. Invest., 1947, 26: 1181. An abstract.

1877
Gomori, G. and Gulyas, E. EFFECT OF PARENTERALLY ADMINISTERED CITRATE ON THE RENAL EXCRETION OF CA. Proc. Soc. Exp. Biol., N. Y., 1944, 56: 226-228. 8 refs. "Repeated subcutaneous injections of citrate into puppies and young rats lead to bone changes similar to those produced by large doses of parathyroid hormone."

METABOLISM, ORGANIC (Continued)

1878
Heinz, E., Müller, E. and Rominger, E. CITRONESÄURE UND RACHITIS. Zschr. Kinderh., 1947, 65: 101-113. 22 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1948-49, 18: No. 2184. A review of pertinent literature and discussion of the role of citric acid in calcium metabolism and its antirachitic action.

1879
*Leijnse, B. ENKELE ASPECTEN VAN DE KOOLHYDRAATSTOFWISSELING VAN VERBENEND WEEFSEL. 85p. Utrecht, 1952. (Thesis-Rijks Univ.) Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 8917.

1880
Monaci, M. and Serneri, G. N. ISTOPATOLOGIA DELL'ACCRESCIMENTO OSSEO NELL'ACCUMULO SPERIMENTALE LIPIDICO E PROTIDICO (IN RIFERIMENTO AGLI IPOEVOLUTISMI SCHELETRICI NELLE TESAURISMOSI). Arch. De Vecchi, 1952, 18: 421-454. 61 refs. Abstracted in: Excerpta med., Sect. 5, 1953, 6: No. 3440.

1881
Tira, P. L. L'INFLUENZA DELLA IPOPROTEINEMIA SULLA OSTEOGENESI RIPARATRICE DELLE FRATTURE. (RICERCHE SPERIMENTALI.) Arch. ortop., 1952, 65: 63-82. 71 refs. Abstracted in: Excerpta med., Sect. 9, 1953, 7: No. 7168.

1882
Van Middlesworth, L. METHIONINE METABOLISM OF HEALING BONE FRACTURES. Arch. Biochem., N. Y., 1953, 43: 458-462. 12 refs. Abstracted in: Chem. Abstr., 1953, 47:9468^{e}; Nutrit. Abstr., Aberdeen, 1953, 23: No. 4632. Rats with one fractured fibula were given intraperitoneal injections of S^{35} methionine, as a tracer, and the protein metabolism of both fibulae was studied 3 hours later. The protein of the fractured bones contained 3 to 5 times more S^{35} than the control bones, in vivo and in vitro.

See:

165 924 1255

NEURAL INFLUENCES

1883
Armstrong, W. D. BONE GROWTH IN PARALYZED LIMBS. Proc. Soc. Exp. Biol., N. Y., 1946, 61: 358-362. Abstracted in: J. Dent. Res., 1946, 25: 157; Biol. Abstr., 1946, 20: No. 17628.

1884
Armstrong, W. D. SKELETAL ATROPHY FOLLOWING NERVE SECTION. Tr. Conf. Metab. Aspects Convalesc., 1945, 11.meet., 110-133. 5 refs.

1885
Asher, L. and Dirr, C. T. INVESTIGATIONS ON THE TROPHIC INFLUENCE OF THE SYMPATHETIC ON TISSUES, ESPECIALLY ON BONE. Confinia neur., Basel, 1939, 2: 306-312. "The influence of the sympathetic on bone was investigated by ultraviolet irradiation of extremities of young rabbits with and without sympathetic innervation. On the normal side, a greater enhancement of bone growth was observed, and the contours of the bones were more even. The uneveness of the contours on the side without sympathetic suggests a tendency for less resistance. ... The facts observed offer new proofs for the trophic function of the sympathetic."

1886
Bisgard, J. D. EFFECT OF SYMPATHETIC GANGLIONECTOMY UPON BONE GROWTH. Proc. Soc. Exp. Biol., N. Y., 1931, 29: 229-230. 4 refs.

1887
Bisgard, J. D. LONGITUDINAL BONE GROWTH; THE INFLUENCE OF SYMPATHETIC DEINNERVATION. Ann. Surg., 1933, 97: 374-380. 20 refs.

1888
Coppo, M. INVESTIGATIONS ON THE MINERAL COMPOSITION OF BONES. RESULTS, CONCLUSIONS. Arch. internat. pharm. dyn., Par., 1935, 50: 328-331. 6 refs. Abstracted in: Biol. Abstr., Balt., 1936, 10: No. 18583. "Denervation resulted in a loss in mineral content of the bone and a diminution of the Ca and Mg. Immobilization, stasis, ischemia, and a muscle-abscess had no effect on bone composition." - Biol. Abstr.

1889
Coppo, M. and Calamaro, S. SULL'INFLUENZA DELL'INNERVAZIONE SULLA COMPOSIZIONE MINERALE DELLE OSSA; NUOVE RICERCHE SPERIMENTALI. Sperimentale, 1942, 96: 503-513. 27 refs.

1890
Corbin, K. B. and Hensey, J. C. INFLUENCE OF THE NERVOUS SYSTEM ON BONES AND JOINTS. Anat. Rec., 1939, 75: 307-317. 33 refs. "Because the structure of the skeletal parts may be maintained in a normal condition for over 3 years following complete denervation, we conclude that bone and joints are not supplied with nerves having a specific trophic function."

1891
Döring, G. and Schaefer, V. ÜBER DEN SCHWUND DER WACHSTUMSFUGEN NACH NERVEN- UND KNOCHENVERLETZUNG. Deut. Zschr. Nervenh., 1947, 158: 211-233. 20 refs.

1892
Fell, W. A. THE EFFECT OF SYMPATHECTOMY ON THE SIZE OF HAVERSIAN CANALS OF CAT. J. Anat., Lond., 1949, 83: 67-68. An abstract.

1893
Ferrannini, A. AZIONE DELLA GANGLIECTOMIA SULLA COMPOSIZIONE MINERALE DELLE OSSA. RICERCHE SPERIMENTALE. Pathologica, Genova, 1935, 27: 777-780. 21 refs. Abstracted in: Chem. Abstr., 1936, 30: 1851^{3}.

1894
*Fontaine, R., Mandel, P. and Ebel-Gries, [A.] SECTION DU SCIATIQUE ET CONSTITUTION BIOCHIMIQUE DE L'OS; ÉTUDE EXPÉRIMENTALE. Rev. neur., Par., 1952, 87: 632-634.

1895
Gullickson, G., Kubicek, W. G. and Kottke, F. J. EFFECTS OF STIMULATION OF LUMBAR SYMPATHETIC NERVES ON LONGITUDINAL BONE GROWTH IN DOGS. Fed. Proc., Balt., 1951, 10: 56. An abstract.

1896
Holtzer, H. AN EXPERIMENTAL ANALYSIS OF THE DEVELOPMENT OF THE SPINAL COLUMN. I. RESPONSE OF PRECARTILAGE CELLS TO SIZE VARIATIONS OF THE SPINAL CORD. J. Exp. Zool., 1952, 121: 121-148. 43 refs. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 9970. "That the diameter of the spinal canal is dependent upon the diameter of the spinal cord was demonstrated by altering the diameter of the latter... A critical mass of neural tissue, approximately 25% of its normal regional value, is prerequisite to the normal modeling of the vertebrae and its processes."

1897
Holtzer, H. and Detwiler, S. R. AN EXPERIMENTAL ANALYSIS OF THE DEVELOPMENT OF THE SPINAL COLUMN. III. INDUCTION OF SKELETOGENOUS CELLS. J. Exp. Zool., 1953, 123: 335-369. pl. 48 refs. Abstracted in: Excerpta med., Sect. 1, 1954, 8: No. 824. Study made on Amblystoma punctatum. Results indicate that the neural axis functions in the induction of the vertebral column and in establishing the somite growth centers.

NEURAL INFLUENCES (Continued)

1898
Hurrell, D. J. THE NERVE SUPPLY OF BONES. J. Anat., Lond., 1937, 72: 54-61. pl. 13 refs. "Nerve fibres were traced into and along the Haversian canals of adult bone and into the bone matrix. Their distribution, characters and endings in the bone matrix are described. Some fibres end blindly in the bone matrix, some in close relation with the bone cells. A suggestion is put forward tentatively that the nerve fibres found may be the two ends of a reflex arc governing bone growth and maintenance."

1899
Key, J. A. and Moore, R. M. HEALING OF FRACTURES, OF DEFECTS IN BONE AND OF DEFECTS IN CARTILAGE AFTER SYMPATHECTOMY. Arch. Surg., 1933, 26: 272-279. 18 refs.

1900
Kuvatov, G. G. and Rusakov, A. V. REGENERATSIIA KOSTNOI TKANI PRI VYKLIUCHENII NERVNYKH TSENTROV. [OSSEOUS TISSUE REGENERATION WITH THE NERVE CENTERS CUT OFF] Arkh. biol. nauk, 1936, 42: No. 3, 49-51. 4 refs. Dogs were used in this study.

1901
McMaster, P. E. and Roome, N. W. EFFECT OF SYMPATHECTOMY ON BONE REPAIR. Proc. Soc. Exp. Biol., N. Y., 1932, 30: 123-124. 2 refs. Experiments with dogs.

1902
Mandel, P., Fontaine, R., Ebel-Gries, A. and Vogeleisen, A. ÉTUDE SUR LA CONSTITUTION BIOCHIMIQUE DE L'OS APRÈS SECTION DU NERF SCIATIQUE, CHEZ LE RAT. C. rend. Soc. biol., 1952, 146: 123-125. Abstracted in: Chem. Abstr., 1952, 46: 11396[a].

1903
*Mastromarino, A. NERVI PERIFERICI E CALLO OSSEO. Arch. ortop., Milano, 1938, 54: 572-595.

1904
Pisa, M. LE GLICEROFOSFATASI PLASMATICHE NEI PROCESSI DI DEMINERALIZZAZIONE OSSEA DA NEVRECTOMIA. Sperimentale, 1935, 89: 76-81. In rabbits, sciatic and crural neurectomy which caused demineralization and decreased bone phosphatase activity were also accompanied by marked hypophosphatasemia.

1905
Prina, C. and Grignani, L. STUDIO SULLA COMPOSIZIONE MINERALE DELLE OSSA IN DIVERSE CONDIZIONI SPERIMENTALI. Boll. Soc. ital. biol. sper., 1949, 25: 1082-1084. 6 refs. In dogs after sciatic neurectomy the leg bones showed decreased calcium and ash and increased magnesium content. This change in the mineral composition could be explained by functional inactivity and consequent circulatory disturbances.

1906
Riley, R. F., McCleary, B. and Johnson, R. E. DENERVATION ATROPHY OF BONE AND MUSCLE. AN EXAMINATION ON THE EFFECT OF CHOLINE AND SOME FURTHER OBSERVATIONS ON THE METABOLISM OF PHOSPHORYLCHOLINE AND DEPOSITION OF P32 IN BONE. Am. J. Physiol., 1945, 143: 677-686. 20 refs. Abstracted in: Biol. Abstr., 1946, 20: No. 619; Chem. Abstr., 1945, 39: 3844[3].

1907
Schiller, M. A. BONE CHANGES IN THE CAT IN EXPERIMENTALLY PRODUCED INJURY TO THE PERIPHERAL NERVES. J. Bone Surg., 1948, 30A: 469-473. 23 refs. Abstracted in: Excerpta med., Sect. 2, 1949, 2: No. 5200.

1908
Simon, R. INNERVATION SYMPATHIQUE ET CROISSANCE. C. rend. Soc. biol., 1930, 103: 709-710. 1 ref.

1909
Sousa Pereira, A. INFLUÊNCIA DA SIMPATICECTOMIA SÔBRE O CRESCIMENTO DOS OSSOS (ESTUDO EXPERIMENTAL). Impr. méd., Lisb., 1937, 3: 165-167.

1910
*Strudel, G. L'INFLUENCE MORPHOGÈNE DU TUBE NERVEUX SUR LA DIFFÉRENCIATION DE LA COLONNE VERTÉBRALE. C. rend. Soc. biol., 1953, 147: 132-133. Abstracted in: Excerpta med., Sect. 1, 1954, 8: No. 1039.

1911
Tower, S. S. TROPHIC CONTROL OF NON-NERVOUS TISSUES BY THE NERVOUS SYSTEM: A STUDY OF MUSCLE AND BONE INNERVATED FROM AN ISOLATED AND QUIESCENT REGION OF SPINAL CORD. J. Comp. Neur., 1937, 67: 241-261. 3 pl. 16 refs. Abstracted in: Biol. Abstr., Balt., 1938, 12: No. 721. Under the experimental conditions of this study, bones were of normal length and general configuration but deficient in thickness. Structures for attachment of muscles were particularly deficient. It was concluded that muscle action determines the thickness and detail but not the length or form in the postnatal development of bone.

1912
Troitskii, V. V. K VOPROSU O VOZDEISTVII NA TEMP RAZVITIIA KOSTNOI MOZOLI; KRATKOE SOOBSHCHENIE OB EKSPERIMENTAL'NOM ISSLEDOVANII. [INFLUENCE OF VARIOUS STIMULATIONS OF PERIPHERAL NERVOUS SYSTEM ON THE RATE OF DEVELOPMENT OF CALLUS; EXPERIMENTAL STUDIES] Ortop. travmat., Kharkov, 1940, 14: No. 4, 27-32.

1913
Winick, M. THE ANTAGONISTIC ACTION OF NERVE AND BONE IN A BALANCE OF TISSUE EXISTING IN THE LIMBS OF ADULT NEWTS DURING THE PROCESS OF REGENERATION. Anat. Rec., 1952, 113: 598. An abstract.

1914
Zazybin, N. INNERVATSIIA KHRIASHCHEVOI TKANI. [THE INNERVATION OF CARTILAGE TISSUE] Arch. russ. anat., 1931, 21: ser. B, 327-342. 19 refs. English summary, p. 372-373.

1915
Zinn, C. J. and Griffith, J. Q., Jr. EFFECT OF SYMPATHECTOMY UPON BLOOD SUPPLY OF BONE. Proc. Soc. Exp. Biol., N. Y., 1941, 46: 311-312. 5 refs. "On the fifth day following lumbar sympathectomy, the blood supply to the tibia in the rat is decreased. This paradoxical effect may be the result of disproportionately greater dilation of the vessels in soft tissues."

1916
Zollinger, R. EFFECT OF LUMBAR GANGLIONECTOMY UPON REPAIR OF BONE; EXPERIMENTAL STUDY. Am. J. Surg., 1933, 20: 70-76. 11 refs.

See:

478	510	518	795	820
841	857	1419	1558	1717

NUTRITIONAL INFLUENCE

1917
Armstrong, W. D. INFLUENCE OF NUTRITIONAL FACTORS ON SKELETAL ATROPHY FROM DISUSE AND ON NORMAL BONES OF MATURE RATS. J. Nutrit., 1948, 35: 597-609. 16 refs. Abstracted in: Chem. Abstr., 1948, 42: 5518[h]; Biol. Abstr., Balt., 1949, 23: No. 467.

1918

Barnes, L. L., Sperling, G. and McCay, C. M. BONE GROWTH IN NORMAL AND RETARDED GROWTH RATS. J. Geront., 1947, 2: 240-243. 1 ref. Abstracted in: Chem. Abstr., 1948, 42: 2667[e]; Biol. Abstr., Balt., 1948, 22: No. 5797.

1919

Bonting, S. L. THE EFFECT OF A PROLONGED INTAKE OF PHOSPHORIC ACID AND CITRIC ACID IN RATS. 97p. Haarlem, Enschedé, 1952. (Thesis-Amsterdam). Literature cited: p. 93-97. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 24613. Bone and teeth were among the tissues studied.

1920

*Bunkfeldt, R. and Steenbock, H. THE EFFECT OF DIETARY FAT ON BONE CALCIFICATION IN THE GROWING RAT. J. Nutrit., 1943, 25: 479-489. Abstracted in: Biol. Abstr., Balt., 1943, 17: No. 21330; Chem. Abstr., 1943, 37: 4108[1].

1921

Follis, R. H., Jr. NUTRITION AND BONE DISEASE. J. Mount Sinai Hosp. N. York, 1949, 16: 1-13. 13 refs. A brief review of the fundamentals of normal bone growth and a description of the changes in bones resulting from nutritional deficiencies.

1922

Hansen, A. E., Palmer, L. S. and Nelson, J. W. COMPOSITION OF BONE IN EXTREME OSTEOPOROSIS ASSOCIATED WITH HEPATOMA. Proc. Soc. Exp. Biol., N. Y., 1940, 43: 206-207. 5 refs.

1923

Kohman, E. F. OXALIC ACID IN FOODS AND ITS BEHAVIOR AND FATE IN THE DIET. J. Nutrit., 1939, 18: 233-246. pl. 7 refs. Abstracted in: Chem. Abstr., 1939, 33: 8710[6]; Biol. Abstr., Balt., 1939, 13: No. 16459. "If to a diet of meat, peas, carrots and sweet potatoes... spinach is added to the extent of about 8% to supply 60% of the calcium, a high percentage of deaths occurs among rats fed between the age of 21 and 90 days. Reproduction is impossible. The bones are low in calcium and tooth structure is disorganized. Spinach not only supplies no available calcium but renders unavailable considerable of that of the other foods."

1924

LEDDBRUSKENS ERNAERING OG FUNKSJONSVEKSLINGER. (An editorial). Tskr. Norske laegeforen., 1952, 72: 164-165. 6 refs.

1925

Mackenzie, C. G. and McCollum, E. V. SOME EFFECTS OF DIETARY OXALATE ON THE RAT. Am. J. Hyg., 1937, 25: 1-10. 14 refs. Abstracted in: Biol. Abstr., Balt., 1937, 11: No. 18483; Chem. Abstr., 1937, 31: 2655[9]. The effect of oxalate on growth, bone formation and calcium excretion was studied.

1926

Malan, A. I. DIET AND OSTEODYSTROPHIC DISEASES IN DOMESTIC ANIMALS. South Afr. M. J., 1940, 14: 261-264. Abstracted in: Biol. Abstr., Balt., 1941, 15: No. 12628. "Bone atrophy and its acute form, osteoporosis, result primarily from increased bone resorption, which invariably takes place in animals receiving a diet deficient in any one or more of its nutrients, organic as well as inorganic. It has still to be shown that these 2 diseases, whatever their cause, do not always fundamentally result from a disturbance in the metabolism of Ca or P, or both."

1927

*Marek, J., Wellmann, O. and Urbányi, L. DIE AUSWIRKUNG VON VERSCHIEDENEN ZUSAMMENGESETZTEN NAHRUNGSSTOFFEN AUF DIE AUSNÜTZUNG DER NAHRSTOFFE UND AUF DIE KNOCHENENTWICKLUNG. Math. naturwiss. Anz. ungar. Akad. Wiss., 1942, 61: 669-673. Abstracted in: Chem. Abstr., 1945, 39: 3336[9].

1928

Mellanby, E. THE RICKETSPRODUCING AND ANTICALCIFYING ACTION OF PHYTATE. J. Physiol., Lond., 1949, 109: 488-533. 2 pl. 33 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1949-50, 19: No. 3325.

1929

Nakajima, T. and Sugita, T. [ON THE INFLUENCE OF THE FEED UPON BONES. II. ON THE INFLUENCE OF UNPOLISHED RICE UPON BONES] Jap. J. Vet. Sc., 1950, 12: 23-30. 5 refs. English summary. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 9038.

1930

Richet, C. and Meyer, R. CONTRIBUTION À L'ÉTUDE DES ANTI-ALIMENTS. Rev. path. comp., Par., 1949, 49: 576-578. The feeding of Rumex to rats without the addition of an excess of $CaCo_2$ led to depletion of calcium in the bones.

1931

Sanfilippo, G. LA CALCEMIA E LA COMPOSIZIONE CHIMICA DELLE OSSA DURANTE LA SOMMINISTRAZIONE PROLUNGATA DEL SUCCO DI AGLIO. Boll. Soc. ital. biol. sper., 1946, 22: 282-283. Abstracted in: Biol. Abstr., Balt., 1948, 22: No. 13866; Chem. Abstr., 1947, 41: 528[h].

1932

Saxton, J. A., Jr. and Silberberg, M. SKELETAL GROWTH AND AGEING IN RATS RECEIVING COMPLETE OR RESTRICTED DIETS. Am. J. Anat., 1947, 81: 445-467. 4 pl. 17 refs. Abstracted in: Biol. Abstr., Balt., 1948, 22: No. 10918.

1933

Shohl, A. T. RELATION OF NUTRITION TO GROWTH OF BONE. Tr. Am. Pediat. Soc., 1938, 50: 39-40. Also in: Am. J. Dis. Child., 1938, 56: 702-703.

1934

Silberberg, M. and Silberberg, R. CHANGES IN CARTILAGE AND BONE OF IMMATURE FEMALE GUINEA PIGS DUE TO UNDERNOURISHMENT WITH CONSIDERATION OF THE PROCESSES OF REPAIR FOLLOWING A PERIOD OF REFEEDING. Arch. Path., Chic., 1940, 30: 675-688. 10 refs. Abstracted in: Biol. Abstr., Balt., 1941, 15: No. 2039; Nutrit. Abstr., Aberdeen, 1940-41, 10: No. 3636.

1935

Slinger, S. J., Motzok, I. and Pepper, W. F. THE EFFECT OF SALT, MANGANESE, AND A.P.F. SUPPLEMENTS ON GROWTH AND BONE FORMATION IN POULTS. Poultry Sc., 1951, 30: 153-156. 4 refs. Abstracted in: Chem. Abstr., 1951, 45: 9634[c].

1936

*Smith, S. E. NEW FACTS ON BONE FORMATION. Am. Miller and Processor, 1944, 72: 71.

1937

*Theopold, W. and Hennig, W. UEBER DIE WIRKUNG VON KOMPLEX EM CALCIUMCITRAT AUF DEN ORGANISMUS. Mschr. Kinderh., 1950, 98: 311-313.

1938

Towey, J. P. INFLUENCE OF SOME NUTRITIONAL FACTORS ON THE ASH CONTENT, BREAKING STRESS, AND ELASTICITY OF RAT BONES. 153p. Rochester, 1952. (Diss.-Univ. Minn.) Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 9667.

NUTRITIONAL INFLUENCE (Continued)

1939

Wolbach, S. B. and Hegsted, D. M. PEROSIS. EPIPHYSEAL CARTILAGE IN CHOLINE AND MANGANESE DEFICIENCIES IN THE CHICK. A.M.A. Arch. Path., 1953, 56: 437-453. 25 refs. Abstracted in: Chem. Abstr., 1954, 48: 3490[f]; Excerpta med., Sect. 5, 1954, 7: No. 1086.

1940

Yeager, R. and Winters, J. C. EFFECT OF DEFICIENT DIETS ON THE TOTAL ASH, CALCIUM AND PHOSPHORUS CONTENT OF BONES. J. Nutrit., 1935, 10: 389-397. 6 refs. Abstracted in: Chem. Abstr., 1936, 30: 138[1]; Nutrit. Abstr., Aberdeen, 1935-36, 5: No. 4223.

1941

Zucker, L. M. and Zucker, T. F. SPECIFIC AND NONSPECIFIC NUTRITIONAL EFFECTS AS ILLUSTRATED IN BONE. Am. J. Physiol., 1946, 146: 593-599. 10 refs. Abstracted in: Chem. Abstr., 1946, 40: 6146[4].

See:

226 268 414 428 1131
1143 1491 1768

NUTRITIONAL INFLUENCE - CARBOHYDRATES

1942

Bourne, G. H. EFFECT OF CERTAIN SUGARS ON CALCIFICATION. Brit. J. Nutrit., 1949, 3: Proc. 11-12.

1943

Handler, P. THE FAILURE OF SKELETAL CALCIFICATION PRODUCED BY HIGH LACTOSE DIETS AND BY SIMPLE CALORIC RESTRICTION. Fed. Proc., Balt., 1946, 5: 233. An abstract.

1944

Hartles, R. L. THE INFLUENCE OF A HIGH-SUCROSE DIET ON THE CALCIUM AND PHOSPHORUS PERCENTAGE OF THE RAT FEMUR, AND A COMPARISON WITH ITS EFFECT ON THE ENAMEL AND DENTINE OF THE RAT INCISOR TEETH. Biochem. J., Lond., 1951, 49: 574-577. 16 refs. Abstracted in: Chem. Abstr., 1952, 46: 1111[g].

1945

Haslhofer, L. and Custer, R. P. KNOCHEN-VERÄNDERUNGEN BEI AZIDOSE. (BEITRAG ZUR FRAGE DER IM VERSUCH ERZEUGTEN OSTITIS FIBROSA). Virchows Arch., 1933, 289: 332-344. 10 refs. In young rabbits histologic studies of the effect of excess dextrose on the bones showed changes found in human and animal rickets.

1946

Hirashima, M. EFFECT OF THE SUGAR DIETS ON THE DEVELOPMENT OF THE BONES OF RABBITS. III REPORT. Sei i kai M. J., 1939, 58: No. 3, 1-2.. Abstract in English.

1947

Hirashima, M. EFFECT OF THE SUGAR DIETS ON THE DEVELOPMENT OF THE BONES OF RATS. II REPORT. Sei i kai M. J., 1939, 58: No. 1, 2-4. Abstract in English. Abstracted in: Chem. Abstr., 1942, 36: 3532[5].

1948

McKeown, R. M., Lindsay, M. K., Harvey, S. C. and Lumsden, R. W. THE BREAKING STRENGTH OF HEALING FRACTURED FIBULAE OF RATS. IV. OBSERVATIONS ON A HIGH-CARBOHYDRATE DIET. Arch. Surg., 1932, 25: 722-748. 17 refs. Abstracted in: Chem. Abstr., 1933, 27: 1921; Biol. Abstr., Balt., 1935, 9: No. 10223.

1949

Outhouse, J., Smith, J., Merritt, L. and White, F. R. A COMPARATIVE STUDY OF THE GROWTH-PROMOTING AND BONE-CALCIFYING EFFECTS OF SEVERAL CARBOHYDRATES. J. Nutrit., 1937, 14: 579-595. 13 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1937-38, 7: No. 5304; Chem. Abstr., 1938, 32: 976[9]. Young rats were fed lactose, sucrose and galactose equivalent to 23%-26% of their caloric intake. No change in growth was observed in controlled feeding, but lactose caused acceleration of bone calcification. This was inferior, however, to that obtained with cod liver oil.

1950

Tuba, J., Siluch, K. A., Robinson, M. I. and Madsen, N. B. THE RELATIONSHIP OF DIETARY FACTORS TO RAT SERUM ALKALINE PHOSPHATASE. IV. EFFECT OF DIETARY OXALATE. Canad. J. M. Sc., 1952, 30: 515-519. 27 refs. Abstracted in: Chem. Abstr., 1953, 47: 4447[f].

1951

Yamane, T. [ÜBER DIE SOGENANNTE OSTEOPATHEA ALIMENTARIA. I. DIE DURCH EINFÜHRUNG VON ROHRZUCKER VERURSACHTE KNOCHENVERÄNDERUNG BEI JUNGEN KANINCHEN] Arch. jap. Chir., 1932, 9: 1028-1051. 2 pl. 13 refs. German summary, p. 1028-1029.

NUTRITIONAL INFLUENCE - FATS

1952

Booth, R. G., Henry, K. M. and Kon, S. K. A STUDY OF THE ANTI-RACHITIC EFFECT OF FAT ON RATS RECEIVING HIGH CALCIUM-LOW PHOSPHORUS RACHITOGENIC DIETS. Biochem. J., Lond., 1942, 36: 445-455. 32 refs.

1953

Dutta, N. C. ANTIRACHITIC EFFECT OF COCONUT OIL AND ITS MODE OF ACTION ON BONE CALCIFICATION. Ann. Biochem. Exp. M., Calc., 1948, 8: 69-78. 14 refs. Abstracted in: Chem. Abstr., 1948, 42: 8275[c]. The study indicated that the beneficial influence of coconut oil on bone calcification is due chiefly to the improved absorption and retention of phosphorus.

1954

McKeown, R. M., Lindsay, M. K., Harvey, S. C. and Lumsden, R. W. THE BREAKING STRENGTH OF HEALING FRACTURED FIBULAE OF RATS. III. OBSERVATIONS ON A HIGH FAT DIET. Arch. Surg., 1932, 25: 467-497. 24 refs. Abstracted in: Chem. Abstr., 1932, 26: 5995; Biol. Abstr., Balt., 1935, 9: No. 10223.

1955

Silberberg, R. and Silberberg, M. GROWTH AND ARTICULAR CHANGES IN SLOWLY AND RAPIDLY DEVELOPING MICE FED A HIGH-FAT DIET. Growth, Phila., 1950, 14: 213-230. 4 pl. 17 refs. Abstracted in: Excerpta med., Sect. 2, 1951, 4: No. 5192; Biol. Abstr., Balt., 1951, 25: No. 10107.

1956

Silberberg, R. and Silberberg, M. SKELETAL GROWTH AND ARTICULAR CHANGES IN MICE RECEIVING A HIGH-FAT DIET. Am. J. Path., 1950, 26: 113-131. 4 pl. 9 refs. Abstracted in: Excerpta med., Sect. 5, 1950, 3: No. 2614; Chem. Abstr., 1950, 44: 2615[a].

1957

Silberberg, R. and Silberberg, M. STRAIN DIFFERENCES IN SKELETAL GROWTH AND AGEING OF MICE FED A HIGH FAT DIET. Fed. Proc., Balt., 1950, 9: 344. An abstract. "Possibly, an as yet undetermined age change in the growing cartilage may be the common denominator for strain and sex differences in the response to various nutritional and normal stimuli."

NUTRITIONAL INFLUENCE - FATS (Continued)

1958

Silberberg, R., Opdyke, M. and Silberberg, M. SIGNIFICANCE OF CALORIC INTAKE AND SPECIFIC EFFECTS OF HIGH-FAT DIETS ON SKELETAL GROWTH AND DEVELOPMENT OF MICE. Growth, Phila., 1952, 16: 127-150. 2 pl. 6 refs. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 5958; Chem. Abstr., 1953, 47: 8863b.

See:

436 1864

NUTRITIONAL INFLUENCE - MINERALS

1959

Adams, C. O. EFFECT OF INORGANIC PHOSPHORUS ON BONE GROWTH AND REPAIR. Proc. Soc. Exp. Biol., N. Y., 1938, 38: 449-451. Abstracted in: Chem. Abstr., 1938, 32: 5882[1]; Biol. Abstr., Balt., 1938, 12: No. 7264. Study was made with rabbits. "There was no evidence, as demonstrated in roentgenograms or microscopic sections, that the feeding of inorganic P affected in any way the healing of the fractures. The tibiae of the animals fed the P did not grow long, on the average, as did the tibiae of the control groups." - Biol. Abstr.

1960

Bassett, C. F., Harris, L. E. and Wilke, C. F. EFFECT OF VARIOUS LEVELS OF CALCIUM, PHOSPHORUS, AND VITAMIN D INTAKE ON BONE GROWTH. II. MINKS. J. Nutrit., 1951, 44: 433-442. Abstracted in: Excerpta med., Sect. 2, 1952, 5: No. 3281; Nutrit. Abstr., Aberdeen, 1951-52, 21: No. 3352. "In practice a nutrient allowance of 0.4 to 1.0% calcium, 0.4 to 0.8% phosphorus, and 0.82 I.U. vitamin D per g. of dry food would give satisfactory results, provided a calcium to phosphorus ratio of between 0.75:1.00 and 1.7:1.0 is maintained."

1961

Bell, G. H., Cuthbertson, D. P. and Orr, J. STRENGTH AND SIZE OF BONE IN RELATION TO CALCIUM INTAKE. J. Physiol., Lond., 1941, 100: 299-317. 19 refs. Abstracted in: Ber. ges. Physiol., 1943, 133: 325; Nutrit. Abstr., Aberdeen, 1941-42, 11: No. 3276.

1962

Bethke, R. M., Edgington, B. H. and Kick, C. H. EFFECT OF THE CALCIUM-PHOSPHORUS RELATIONSHIP OF THE RATION ON GROWTH AND BONE FORMATION IN THE PIG. J. Agr. Res., 1933, 47: 331-338. 9 refs. Abstracted in: Chem. Abstr., 1934, 28: 2044[6]; Biol. Abstr., Balt., 1935, 9: No. 1335; Nutrit. Abstr., Aberdeen, 1933-34, 3: No. 3792. In this study a histological study and ash analysis were made of portions of ribs, including the costochondral junctions, and both femurs.

1963

Bloom, C. J. SECONDARY CALCIUM PHOSPHATE PREVENTS AND CURES RICKETS WITHOUT VITAMIN D. 2. CALCIFICATION STUDIES. Proc. Soc. Exp. Biol., N. Y., 1932, 29: 861-863.

1964

Boelter, M. D. D. and Greenberg, D. M. SEVERE CALCIUM DEFICIENCY IN GROWING RATS. I. SYMPTOMS AND PATHOLOGY. J. Nutrit., 1941, 21: 61-74. 6 refs. Abstracted in: Chem. Abstr., 1941, 35: 4067[6].

1965

Boelter, M. D. D. and Greenberg, D. M. SEVERE CALCIUM DEFICIENCY IN GROWING RATS. II. CHANGES IN CHEMICAL COMPOSITION. J. Nutrit., 1941, 21: 75-84. 13 refs. Abstracted in: Chem. Abstr., 1941, 35: 4067[6].

1966

Brooke, R. O., Smith, A. H. and Smith, P. K. INORGANIC SALTS IN NUTRITION. VII. CHANGE IN COMPOSITION OF BONE OF RATS ON A DIET POOR IN INORGANIC CONSTITUENTS. J. Biol. Chem., 1934, 104: 141-148. 22 refs. Abstracted in: Biol. Abstr., Balt., 1935, 9: No. 4838; Chem. Abstr., 1934, 28: 1388[9]; Nutrit. Abstr., Aberdeen, 1934-35, 4: No. 500.

1967

Cartarr, M. S., McLean, F. C. and Urist, M. R. THE EFFECT OF THE CALCIUM AND PHOSPHORUS CONTENT OF THE DIET UPON THE FORMATION AND STRUCTURE OF BONE. Am. J. Path., 1950, 26: 307-331. 28 refs. Abstracted in: Chem. Abstr., 1950, 44: 6504[d]. The long bones of young rats, maintained on diets of different calcium and phosphorus content were studied and compared. It was found that "optimum" diets produced longer metaphyses, less osteoblastic and osteoclastic activity, greater trabeculae calcification and a much denser shaft than "adequate" diets and that diets enriched in calcium but not in phosphorus resulted in the withdrawal of phosphorus from the diet in the intestinal tract in insoluble form which was followed by various changes in the bones. The study is illustrated by tables and roentgenograms.

1968

Clarke, M. F., Bassin, A. L. and Smith, A. H. SKELETAL CHANGES IN THE RAT INDUCED BY A RATION EXTREMELY POOR IN INORGANIC SALTS. Am. J. Physiol., 1936, 115: 556-563. 22 refs. "Although increase in body weight ceased, the length and weight of the femur, humerus, fibula and radius continued to increase slowly. During... salt restriction the moisture of the bone increased, the ash decreased and a marked distortion of the A/R ratio was established. Even after relatively long periods of realimentation with an adequate diet, the percent of moisture and ash and the dimensions of the bone failed to attain values normal for the age. Breaking strength appears to be more closely correlated with organic pattern as reflected in the size of the bone than with the proportion of inorganic salts."

1969

Coleman, R. D., Becks, H., Copp, D. H. and Frandsen, A. M. SKELETAL CHANGES OF SEVERE PHOSPHORUS DEFICIENCY IN THE RAT. II. SKULL, TEETH, AND MANDIBULAR JOINT. Oral. Surg., 1953, 6: 757-764. 10 refs. Abstracted in: Excerpta med., Sect. 5, 1954, 7: No. 276; Brit. Abstr., 1954, p. 645.

1970

Copp, D. H., Chace, M. J. and Duffy, F. EFFECTS OF SEVERE PHOSPHORUS DEFICIENCY ON THE METABOLISM AND HISTOLOGY OF BONE. Fed. Proc., Balt., 1947, 6: 245. An abstract. "These findings indicate the inhibition of growth of soft tissue and extreme demineralization of bone associated with severe phosphorus deficiency."

1971

Cunningham, I. J. MAGNESIUM IN ANIMAL DIETS. THE INFLUENCE OF THE LEVEL OF DIETARY MAGNESIUM ON THE MAGNESIUM AND CALCIUM CONTENTS OF THE BONES, THE BODIES, AND THE BLOOD SERUM OF RATS. N. Zealand J. Sc., 1933, 15: 191-198. 12 refs. Abstracted in: Biol. Abstr., Balt., 1935, 9: No. 2745; Chem. Abstr., 1934, 28: 2395[7].

1972

Dallemagne, [M.] J., Derivaux, J., Liegeois, F. and Mélon, J. ÉTUDE DU SQUELETTE DE PORCS SOUMIS À UN RÉGIME HYPERPHOSPHORÉ. Bull. Soc. chim. biol., Par., 1950, 32: 250-254. 6 refs. Following diets with a Ca:P ratio of 1:5.5 to 1:7.3, subnormal mineralization was observed in irregular areas of the bones of growing pigs.

NUTRITIONAL INFLUENCE - MINERALS (Continued)

1973
Day, H. G. and McCollum, E. V. MINERAL METABOLISM, GROWTH, AND SYMPTOMATOLOGY OF RATS ON A DIET EXTREMELY DEFICIENT IN PHOSPHORUS. J. Biol. Chem., 1939, 130: 269-283. 28 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1939-40, 9: No. 3288. "The results show that dietary deficiency of P results in rapid depletion of skeletal P but that, until this has become very extensive, transfer of P from bone to soft tissues occurs despite continuous loss of P, the P transferred being used, together with N, for such growth as occurs." - Nutrit. Abstr.

1974
Downs, W. G., Jr. and McKeown, R. M. HISTOLOGY OF HEALING FRACTURES IN RATS ON DIETS LOW IN TOTAL SALT, CALCIUM AND PHOSPHORUS. Arch. Surg., 1932, 25: 108-121. 9 refs. Abstracted in: Biol. Abstr., Balt., 1934, 8: No. 16549.

1975
Duckworth, J., Godden, W. and Warnock, G. McM. THE EFFECT OF ACUTE MAGNESIUM DEFICIENCY ON BONE FORMATION IN RATS. Biochem. J., Lond., 1940, 34: 97-108. 17 refs. Abstracted in: Chem. Abstr., 1940, 34: 4431^{2}; Biol. Abstr., Balt., 1940, 14: No. 10119.

1976
Euler, H. v. and Rydbom, M. ÜBER DEN EINFLUSS VON MAGNESIUMSALZEN AUF KNOCHENBILDUNG UND RACHITIS. I. Biochem. Zschr., 1931, 241: 14-22. 14 refs. Abstracted in: Biol. Abstr., Balt., 1933, 7: No. 8235; Chem. Abstr., 1932, 26: 1012.

1977
Feaster, J. P., Shirley, R. L., McCall, J. T. and Davis, G. K. P^{32} DISTRIBUTION AND EXCRETION IN RATS FED VITAMIN D-FREE AND LOW PHOSPHORUS DIETS. J. Nutrit., 1953, 51: 381-392. 11 refs. Abstracted in: Biol. Abstr., Balt., 1954, 28: No. 10491. "... the deposition and turnover of orally and intramuscularly administered P^{32} in the blood, liver, kidney, muscle, and femur of growing rats maintained on diets that were (1) adequate, (2) adequate but lacking in vitamin D, and (3) low in P were compared."

1978
Fischer, F. and Key, J. A. LOCAL ATROPHY OF BONE. III. EFFECTS OF VITAMIN D AND OF CALCIUM ON LOCAL ATROPHY, AND UNION. Arch. Surg., 1934, 29: 312-315. 14 refs.

1979
Fraser, H. F. A CHRONIC DEFICIENCY OF (1) CALCIUM, (2) VITAMIN C, AND (3) BOTH CALCIUM AND VITAMIN C IN MONKEYS. Pub. Health Rep., 1942, 57: 959-967. 9 refs. Abstracted in: Biol. Abstr., Balt., 1943, 17: No. 1521. Bones were included in this study.

1980
Gillis, M. B. FURTHER STUDIES ON THE ROLE OF POTASSIUM IN GROWTH AND BONE FORMATION. J. Nutrit., 1950, 42: 45-57. 10 refs. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 10120; Chem. Abstr., 1950, 44: 10832^{b}.

1981
Goff, O. E. and Upp, C. W. THE INFLUENCE OF ELEMENTAL SULFUR UPON CHICK GROWTH AND BONE ASH. Poultry Sc., 1940, 19: 270-280. 20 refs. Abstracted in: Chem. Abstr., 1940, 34: 7358^{4}.

1982
Green, H. H. MINERALS IN RELATION TO DISEASE OF THE LARGER DOMESTICATED ANIMALS. Empire J. Exp. Agr., 1935, 3: 363-378. 43 refs. "A brief survey of the dietary significance of phosphorus, calcium, magnesium, iron, copper, iodine, fluorine, chlorine, sodium, and potassium is given with reference to diseased conditions in the animal, such as osteoporosis, osteomalacia, rickets, osteofibrosis, nutritional anaemaias, and hypomineralaemias."

1983
Higgins, G. M. and Sheard, C. THE EFFECT OF DICALCIUM PHOSPHATE, WITHOUT VITAMIN D, IN THE NUTRITION OF CHICKS. Anat. Rec., 1933, 56: 395-408. pl. 10 refs. Abstracted in: Biol. Abstr., Balt., 1934, 8: No. 19829. It was concluded that "dicalcium phosphate, without vitamin D, is not adequate to maintain growing chicks and will not protect against leg weakness and other skeletal deficiencies which arise as a result of a disturbed calcium metabolism."

1984
Howe, P. R., Wesson, L. G., Boyle, P. E. and Wolbach, S. B. LOW CALCIUM RICKETS IN THE GUINEA-PIG. Proc. Soc. Exp. Biol., N. Y., 1940, 45: 298-301. 6 refs. "Typical rachitic changes in bones and teeth have been produced in young guinea pigs by a diet low in calcium and in vitamin D. In older animals the changes in the bones were obscured by arrested skeletal growth, but those in the teeth were constant."

1985
Irving, J. T. A COMPARISON OF THE ACTION OF VITAMIN D ON THE TEETH OF RACHITIC RATS WITH THAT OF ADDITIONAL CALCIUM OR PHOSPHORUS ADDED TO RACHITOGENIC DIETS. J. Physiol., Lond., 1946, 104: 253-265. 3pl. 24 refs. Abstracted in: Biol. Abstr., Balt., 1946, 20: No. 20110. Studies of the bones and teeth of young rats whose rachitogenic diets were improved by the addition of calcium or phosphorus or by administration of vitamin D.

1986
Kruse, H. D., Schmidt, M. M. and McCollum, E. V. STUDIES ON MAGNESIUM DEFICIENCY IN ANIMALS. VI. CHEMICAL CHANGES IN THE BONE, WITH ASSOCIATED BLOOD CHANGES, RESULTING FROM MAGNESIUM DEPRIVATION. J. Biol. Chem., 1934, 106: 573-593. 38 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1934-35, 4: No. 2552.

1987
Lanford, C. S. and Sherman, H. C. FURTHER STUDIES OF THE CALCIUM CONTENT OF THE BODY AS INFLUENCED BY THAT OF THE FOOD. J. Biol. Chem., 1938, 126: 381-387. 6 refs. Abstracted in: Chem. Abstr., 1939, 33: 6975.

1988
Lecoq, R. INFLUENCE DE L'IODE ET DE QUELQUES COMPOSÉS IODÉS MINÉRAUX ET ORGANIQUES SUR LES LÉSIONS OSSEUSES DU RACHITISME EXPÉRIMENTAL. C. rend. Acad. sc., 1937, 204: 1891-1893. 2 refs. The bone lesions of young white rats with experimental rickets, produced by a rachitogenic diet, were cured when pure iodine or mineral or organic iodized compounds were added to the diet. It is suggested that the presence of iodine in a ration may be the cause of error in the estimation of its antirachitic value.

1989
Lecoq, R. LA PRODUCTION DU RACHITISME EXPÉRIMENTAL EST-ELLE SPÉCIFIQUEMENT LIÉE AU DÉSÉQUILIBRE PHOSPHOCALCIQUE DE LA RATION? C. rend. Acad. sc., 1942, 215: 330-332. 6 refs. Studies of white rats on various rachitogenic diets led to the conclusion that a phosphorus-calcium imbalance alone does not produce chronic experimental rickets but that it is produced rather by a mineral imbalance which causes alkalosis.

NUTRITIONAL INFLUENCE - MINERALS (Continued)

1990
Lecoq, R. and Duffau, R. VARIATIONS DE QUELQUES CONSTITUANTS MUSCULAIRES CHEZ LE RAT PRÉALABLEMENT RACHITISÉ PUIS GUÉRI PAR ADJONCTION, À LA RATION, D'IODE OU DE DÉRIVÉS IODÉS. C. rend. Soc. biol., 1938, 128: 619-621. 5 refs. Young rats were cured of experimental rickets when minimum adequate quantities of iodine or iodine derivatives were added to their rachitogenic diets. Iodine treatment was accompanied by a drop in muscular orthophosphates and in total acid soluble phosphorus which returned to normal levels after cure. This is interpreted as indicating that the antirachitic action of iodine consists in provoking the transfer of inorganic phosphorus from muscle to bone.

1991
Lecoq, R. and Gallier, R. LE PHOSPHORE EST-IL DOUÉ DE PROPRIÉTÉS ANTIRACHITIQUES? C. rend. Soc. biol., 1934, 116: 1383-1384. 5 refs. Young white rats with experimental rickets were fed rachitogenic diets containing various amounts of phosphorated oil. At autopsy, 10 days after the start of the experiment, no effect was observed on calcification. It is suggested that the antirachitic action attributed to phosphorus is actually due to a particular combination of phosphorus compounds and not to phosphorus alone.

1992
Light, R. F. and Frey, C. N. BONE FRACTURES DUE TO LOW CALCIUM DIETS. Proc. Soc. Exp. Biol., N. Y., 1951, 48: 256-258. 1 ref. Abstracted in: Biol. Abstr., Balt., 1942, 16: No. 3906; Nutrit. Abstr., Aberdeen, 1941-42, 11: No. 3277.

1993
Lilly, C. A. COMPARISON OF BONE ASH OF RACHITIC RATS TREATED WITH VIOSTEROL AND WITH PHOSPHATE ION. Proc. Soc. Exp. Biol., N. Y., 1932, 30: 175-176.

1994
Lilly, C. A., Peirce, C. B. and Grant, R. L. THE EFFECT OF PHOSPHATES ON THE BONES OF RACHITIC RATS. J. Nutrit., 1935, 9: 25-35. 2 pl. 18 refs. "Rickets was produced in white rats by a diet high in calcium and low in phosphorus. The subsequent addition of phosphates to this diet, caused x-ray, chemical, and histological evidences of healing, at least equal to that caused by the addition of irradiated ergosterol (viosterol) to the diet of another group of rats previously made rachitic in the same manner."

1995
McKay, G. F., Lalich, J. J. and Angevine, D. M. PATHOGENESIS OF BONE LESIONS IN RATS FED SWEET PEAS (LATHYRUS ODORATUS). Fed. Proc., Balt., 1954, 13: 438. An abstract.

1996
McKeown, R. M. Harvey, S. C. and Lumsden, R. W. THE BREAKING STRENGTH OF HEALING FRACTURED FIBULAE OF RATS. V. OBSERVATIONS ON A LOW CALCIUM DIET. Arch. Surg., 1932, 25: 1011-1034. 34 refs. Abstracted in: Biol. Abstr., Balt., 1935, 9: No. 10223.

1997
Marek, J., Wellmann, O. and Urbányi, L. UNTERSUCHUNGEN ÜBER RACHITIS UND VERWANDTE KNOCHENERKRANKUNGEN. VI. MITTEILUNG. EINFLUSS DES MINERALSTOFFVERHÄLTNISSES SOWIE DES D-VITAMINGEHALTES IM FUTTER AUF DIE AUSNÜTZUNG DER MINERALSTOFFE. Deut. tierärztl. Wschr., 1940, 48: 69-74. Abstracted in: Vet. Bull., Lond., 1941, 11:

1998
Marek, J., Wellmann, O. and Urbányi, L. UNTERSUCHUNGEN ÜBER DEN MINERALSTOFFWECHSEL DES TIERISCHEN ORGANISMUS. VIII. MITTEILUNG. BEEINFLUSSUNG DES MINERALSTOFFWECHSELS DURCH EIN VERSCHIEDENARTIG MIT KALKCARBONAT ERGÄNZTES PHOSPHORARMES BZW. PHOSPHORREICHES FUTTER. Arch. wiss. prakt. Tierh., 1942, 78: 129-139. Abstracted in: Ber. ges. Physiol., 1943, 133: 177-178.

1999
Marek, J., Wellmann, O. and Urbányi, L. UNTERSUCHUNGEN ÜBER DEN MINERALSTOFFWECHSEL DES TIERKÖRPERS. IX. MITTEILUNG. AUSWIRKUNG MINERALSTOFFICH VERSCHIEDEN ZUSAMMENGESETZTER FUTTERMITTEL AUF DIE AUSNÜTZUNG DER MINERALSTOFFE NACH IHRER GEGENSEITIGEN VERTAUSCHUNG. Arch. wiss. prakt. Tierh., 1942, 78: 140-147.

2000
Mendel, L. B., Hubbell, R. B. and Wakeman, A. J. THE INFLUENCE OF SOME COMMONLY USED SALT MIXTURES UPON GROWTH AND BONE DEVELOPMENT OF THE ALBINO RAT. J. Nutrit., 1937, 14: 261-272. 25 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1937-38, 7: No. 3504.

2001
Nakajima, T. and Sugita, T. [ON THE INFLUENCE OF THE FEED UPON BONES. I. CHEMICAL COMPONENTS OF THE BONE OF NORMAL DEVELOPING RATS AND THE INFLUENCE OF THE FEED SUPPLEMENTED WITH CALCIUM ON THE COMPOSITION AND DEVELOPMENT OF THE BONE] Jap. J. Vet. Sc., 1950, 12: 13-22. 13 refs. English summary. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 9037.

2002
*Nakajima, T., Ōmori, S., Ōtsuka, J., Nozaki, H. and Hagahata, S. [PHOSPHORUS METABOLISM IN RABBITS SUFFERING FROM SO-CALLED OSTEOMALACIA] Bull. Nat. Inst. Agr. Sc., Chiba, ser. G, 1953, No. 6, 37-42. English summary. Abstracted in: Nutrit. Abstr., Aberdeen, 1954, 24: No. 816.

2003
Owen, E. C. BONE AS A MINERAL RESERVE. Brit. J. Nutrit., 1952, 6: 415-423. 65 refs. Abstracted in: Excerpta med., Sect. 2, 1953, 6: No. 1772. A review which stresses the lability of bone calcium and phosphorus reserves. Where diets are deficient in calcium, phosphorus and magnesium, the soft tissues compete and minerals are lost from the adult skeleton, while the growing skeleton becomes undermineralized. Vitamin D favors bones at the expense of soft tissues. In teeth, minerals are irreversibly deposited.

2004
Oya, M. [ON THE INFLUENCE OF DIET, TO WHICH CALCIUM HAS BEEN ADDED, ON THE OSTEOGENESIS OF ALBINO RATS. REPORT I] Sei i Kai M. J., 1940, 59: 661-699. 7 pl. 34 refs. English abstract, p. 1-2.

2005
POTASSIUM-PHOSPHORUS INTERRELATIONSHIP. Nutrit. Rev., 1951, 9: 104-106.

2006
Randoin, L. and Causeret, J. RECHERCHES EXPÉRIMENTALES RELATIVES À L'INFLUENCE DE LA TENEUR DU RÉGIME ALIMENTAIRE EN PHOSPHORE, EN CALCIUM, EN MAGNÉSIUM ET EN VITAMINE D, SUR LE DÉVELOPPEMENT OSSEUX DU RAT BLANC. Bull. Soc. sc. hyg. aliment., Par., 1945, 33: 134-143. 20 refs. Abstracted in: Chem. Abstr., 1947, 41: 4203e; Nutrit. Abstr., Aberdeen, 1946-47, 16: No. 4510.

NUTRITIONAL INFLUENCE - MINERALS (Continued)

2007
Rogoziński, F. and Główczyński, Zb. O KRZYWICY DOŚWIADCZALNEJ. VI. WPŁYW SOLI MAGNEZOWYCH. SUR LE RACHITISME EXPÉRIMENTAL. VI. L'INFLUENCE DES SELS DE MAGNÉSIUM. Bull. internat. Acad. polon. sc., Ser. B. Sc natur.(II), 1934, 197-208. pl. 7 refs. In French. Abstracted in: Biol. Abstr., Balt., 1936, 10: No. 13052.

2008
Spildo, L. S. UNDERSØGELSER OVER VAEKSTEN HOS SVIN. I. KALK- OG FOSFORSYREOMSAETNINGEN HOS UNGE, VOKSENDE SVIN. Ber. Forsøgslaborat., Kbh., 1933, No. 151, 238p. 2 pl. 155 refs. English summary.

2009
Stewart, J. THE EFFECTS OF PHOSPHORUS DEFICIENT DIETS ON THE METABOLISM, BLOOD AND BONES OF SHEEP WITH SPECIAL REFERENCE TO CONDITIONS EXISTING IN GREAT BRITAIN. Univ. Cambridge Inst. Animal Path. Rep. Dir., 1934-1935, 4: 179-205. 13 refs. For addendum to this article see Innes, J. R. M. THE ANATOMICAL CHANGES IN THE BONES AND THEIR RELATIONSHIP TO RICKETS. 1934-1935, 4: 206-211. 2 pl. 9 refs. Abstracted in: Chem. Abstr., 1937, 31: 7093[4]; Biol. Abstr., Balt., 1937, 11: No. 8311.

2010
Takahashi, S. [NEUE EXPERIMENTELLE STUDIEN ÜBER DIE KALKMETASTASE. II. MITTEILUNG.] Mitt. Med. Akad. Kioto, 1937, 20: 205-218. 2 pl. 12 refs. German summary, p. 510-511. Abstracted in: Nutrit. Abstr., Aberdeen, 1937-38, 7: No. 2136.

2011
Tomlinson, T. H., Jr. PATHOLOGY OF ARTIFICIALLY INDUCED SCURVY IN THE MONKEY - WITH AND WITHOUT CHRONIC CALCIUM DEFICIENCY. Pub. Health Rep., Wash., 1942, 57: 987-993. 2 pl. 3 refs. Abstracted in: Biol. Abstr., Balt., 1942, 16: No. 22344.

2012
Weinmann, J. P. and Schour, I. EXPERIMENTAL STUDIES IN CALCIFICATION. V. THE EFFECT OF PHOSPHATE ON THE ALVEOLAR BONE AND THE DENTAL TISSUES OF THE RACHITIC RAT. Am. J. Path., 1945, 21: 1057-1067. 2 pl. 7 refs. Abstracted in: Chem. Abstr., 1946, 40: 2509[3]; Nutrit. Abstr., Aberdeen, 1945-46, 15: No. 3430.

2013
Zucker, T. F., Hall, L. and Young, M. GROWTH AND CALCIFICATION ON A DIET DEFICIENT IN PHOSPHATE BUT OTHERWISE ADEQUATE. J. Nutrit., 1941, 22: 139-151. 18 refs. Abstracted in: Chem. Abstr., 1941, 35: 8029[7].

See:

71	370	374	438	540
1181	1252	1270	1369	1397
1614	1818	1919	2025	2129
2130	2656	2896	2905	2906

NUTRITIONAL INFLUENCE - PROTEIN

2014
Armstrong, W. D. and Estremera, H. EFFECT OF PROTEIN DEFICIENT DIETS ON THE SKELETON OF THE MATURE RAT. Fed. Proc., Balt., 1947, 6: 235. An abstract.

2015
Aschkenasy, A., Mignot, J. and Aschkenasy-Lelu, P. LES ALTÉRATIONS OSSEUSES DU RAT EN FONCTION DE LA TENEUR DU RÉGIME EN PROTÉINES. C. rend. Soc. biol., 1948, 142: 1378-1379. 3 refs. Abstracted in: Chem. Abstr., 1949, 43: 5097[h]; Nutrit. Abstr., Aberdeen, 1949-50, 19: No. 843.

2016
Bauer, W. H. ACTION OF CYSTINE ON BONES AND TEETH OF YOUNG DOGS. J. Am. Coll. Dentists, 1946, 13: 34-37. 5 refs. Abstracted in: Chem. Abstr., 1948, 42: 5116[f]. Both roentgenographic and microscopic examinations of the skeleton of experimental animals, fed excessive amounts of cystine, failed to show differences from the control dogs.

2017
Conner, R. T. and Sherman, H. C. SOME ASPECTS OF PROTEIN INTAKE IN RELATION TO GROWTH AND RATE OF CALCIFICATION. J. Biol. Chem., 1936, 115: 695-706. 11 refs. Abstracted in: Biol. Abstr., Balt., 1937, 11: No. 15959.

2018
Conner, R. T., Kao, H. C. and Sherman, H. C. FURTHER STUDIES ON THE RELATIONSHIP OF THE PLANE OF PROTEIN INTAKE TO THE RATE OF NORMAL CALCIFICATION DURING GROWTH. J. Biol. Chem., 1941, 139: 835-841. 5 refs. Abstracted in: Chem. Abstr., 1941, 35: 5166[7]. "There was no consistent evidence in either sex that the increased gain in body weight resulting from the higher protein levels studied had an accelerating effect upon skeletal development as reflected in the percentage of body calcium."

2019
Conti, T. and Sabaino, D. PROTEIDI ANIMALI E VÉGETALI E COSTITUZIONE MINERALE DELLA OSSA. Arch. sc. med., Tor., 1953, 95: 79-83. 3 refs. Two groups of rats were fed protein diets of casein and wheat germ, respectively, and the effects on the long bones studied. Wheat germ favored a greater deposit of Ca, P, and CO_2 in the bones than did casein and simultaneously inhibited the deposit of Mg. Casein encouraged linear growth of the tibia and femur and increased their resistance to fracture.

2020
Dasler, W. THE EFFECTS OF EXCESS TRYPTOPHAN AND EXCESS LYSINE ON THE PRODUCTION OF RICKETS IN THE RAT. J. Nutrit., 1950, 41: 499-505. 8 refs.

2021
Doyle, M. D. and Porter, T. E. THE EFFECT OF KIND AND LEVEL OF PROTEIN IN THE DIET ON THE PRODUCTION OF SOFT AND SKELETAL TISSUES. J. Nutrit., 1951, 45: 29-46. 12 refs. Abstracted in: Chem. Abstr., 1952, 46: 168f; Biol. Abstr., Balt., 1952, 26: No. 11316. In young rats on a low calcium diet, casein favors bone formation to a greater extent than does gluten. This may be considered a direct effect of protein on bone formation.

2022
Estremera, H. R. and Armstrong, W. D. EFFECT OF PROTEIN INTAKE ON THE BONES OF MATURE RATS. J. Nutrit., 1948, 35: 611-618. 11 refs. Abstracted in: Biol. Abstr., Balt., 1949, 23: No. 475; Chem. Abstr., 1948, 42: 5519[b]. "Diets containing 9.0 and 4.5% protein were inadequate to support normal skeletal constitution in mature rats, and interfered with the normal growth in length of the humeri of rats which were near the end of the period of skeletal growth. The composition of the bone ash, however, was not affected by feeding protein-deficient diets to mature rats."

NUTRITIONAL INFLUENCE - PROTEIN (Continued)

2023
Fontaine, R., Mandel, P. and Gries, A. NOUVELLES DONNÉES SUR L'ÉVOLUTION BIOCHIMIQUE DE L'OS AU COURS DE JEÛNE PROTÉIQUE PROLONGÉ CHEZ LE RAT. C. rend. Soc. biol., 1950, 144: 1397-1399. 3 refs. Abstracted in: Chem. Abstr., 1951, 45: 6254e. "In rats prolonged deprivation of protein was accompanied by a parallel reduction of the protein matrix of bone and of mineral constituents..., corresponding to the phenomenon of osteolysis."

2024
Greenberg, R. M., Barry, M. G. and Mayer, J. INFLUENCE OF THE PROTEIN LEVEL AND OF MANGANESE ON BONE WEIGHT, TOTAL CALCIUM CONTENT AND PERCENTAGE CALCIUM. Fed. Proc., Balt., 1952, 11: 444-445. An abstract.

2025
György, P., Popoviciu, G. and Sano, T. UNTERSUCHUNGEN ÜBER DIE EXPERIMENTELLE RACHITIS. VII. MITTEILUNG. DIE WIRKUNG VON CEREALIEN UND VON KOCHSALZ AUF DIE ENTSTEHUNG DER RATTENRACHITIS. Zschr. Kinderh., 1933, 55: 442-466. 24 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1933-34, 3: No. 3484.

2026
Howes, E. L. and McKeown, R. M. INFLUENCE OF A DIET RICH IN CASEIN ON THE STRENGTH OF BONE AND THE HEALING OF FRACTURES. Arch. Surg., 1934, 29: 786-793. 9 refs. "A diet rich in casein increased the strength of bone per unit of body weight in rats and accelerated the rate of healing of fractures."

2027
Kemény, T., Tóth, E., Rudas, I. and Sós, J. DIE WIRKUNG DES METHIONINMANGELS AUF DAS KNOCHENSYSTEM. Acta physiol. hung., 1953, 4: Suppl., 53-54.

2028
*Mandel, P., Fontaine, R., Ebel-Gries, A., Jacob, M. and Ostertag, M. CONSTITUTION BIOCHIMIQUE DE L'OS AU COURS DU JEÛNE PROTÉIQUE PROLONGÉ CHEZ LE RAT. C. rend. Soc. biol., 1949, 143: 1229-1231. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 36073; Chem. Abstr., 1950, 44: 7395a.

2029
Maun, M. E., Cahill, W. M. and Davis, R. M. MORPHOLOGIC STUDIES OF RATS DEPRIVED OF ESSENTIAL AMINO ACIDS. I. PHENYLALANINE. Arch. Path., Chic., 1945, 39: 294-300. 14 refs. For description in changes of bones, joints and marrow, see particularly, p. 296-298. Abstracted in: Biol. Abstr., Balt., 1945, 19: No. 15743.

2030
Maun, M. E., Cahill, W. M. and Davis, R. M. MORPHOLOGIC STUDIES OF RATS DEPRIVED OF ESSENTIAL AMINO ACIDS. III. HISTIDINE. Arch. Path., Chic., 1946, 41: 25-31. 7 refs. See particulary p. 29 for description of changes in bone and marrow. Abstracted in: Biol. Abstr., Balt., 1946, 20: No. 12134.

2031
*Nakajima, T., Sugita, T., Watanabe, T. and Arai, K. [ON THE INFLUENCE OF THE FEED UPON BONES. VI. EFFECTS OF PROTEIN UPON BONES] Bull. Nat. Inst. Agr. Sc., Yahagi, ser. G, 1952, No. 3, 209-214. English summary. Abstracted in: Nutrit. Abstr., Aberdeen. 1953, 23: No. 3332.

2032
*Nakajima, T., Sugita, T., Watanabe, T. and Arai, K. [ON THE INFLUENCE OF THE FEED UPON BONES. VII. EFFECT OF PROTEIN ON THE RICKET-LIKE BONE OF RATS] Bull. Nat. Inst. Agr. Sc., Yahagi, ser. G, 1952, No. 3, 215-219. English summary. Abstracted in: Nutrit. Abstr., Aberdeen, 1953, 23: No. 3332.

2033
Rhoads, J. E. and Kasinskas, W. THE INFLUENCE OF HYPOPROTEINEMIA ON THE FORMATION OF CALLUS IN EXPERIMENTAL FRACTURE. Surgery, 1942, 11: 38-44. 4 refs. Abstracted in: Chem. Abstr., 1942, 36: 2300[9].

2034
Sabaino, D. and Conti, T. AMINOACIDI E TESSUTO OSSEO. Minerva ortop., Tor., 1953, 4: 139-143.

2035
Sabaino, D. and Conti, T. DIETA E TESSUTO OSSEO. Arch. sc. med., Tor., 1953, 95: 433-444. 5 refs. Groups of rats were fed different diets, each group receiving only one type of protein. "It was observed that raw casein refined from cow's milk, gluten and acrolein in the diets could determine variations in the mineral composition of bone and in the degree of resistance to experimental fracture... Crude or refined casein favored increased bone resistance, gluten and refined casein favored P accumulation while gluten alone inhibited Mg retention in bone. Bone resistance was not strictly proportionate to the concentration of certain anions and cations..."

2036
Silberberg, M. and Silberberg, R. SKELETAL GROWTH AND DEVELOPMENT IN MICE FED A HIGH PROTEIN DIET. Arch. Path., Chic., 1949, 48: 331-341. 6 refs. Abstracted in: Excerpta med., Sect. 5, 1950, 3: No. 1672; Biol. Abstr., Balt., 1950, 24: No. 8970.

2037
Van Middlesworth, L. PROTEIN METABOLISM OF FRACTURE CALLUS AND MUSCLE TRAUMA STUDIED WITH RADIOACTIVE METHIONINE. Fed. Proc., Balt., 1950, 9: 129. An abstract.

2038
Vivanco, F. and Jiménez Diaz, C. NUEVOS ESTUDIOS SOBRE LOS EFECTOS DE LAS PROTEINAS DE LAS LEGUMBRES (LEGUMINISMOS) EL LATIRISMO ODORATO (ODORATISMO). Rev. clin. españ., 1951, 40: 157-163. 5 refs. Abstracted in: Chem. Abstr., 1951, 45: 9648f.

See:

100 745 1415 1437 1876

NUTRITIONAL INFLUENCE - STARVATION

2039
Handler, P., Baylin, G. J. and Follis, R. H., Jr. THE EFFECTS OF CALORIC RESTRICTION ON SKELETAL GROWTH. J. Nutrit., 1947, 34: 677-689. 10 refs. Abstracted in: Biol. Abstr., Balt., 1948, 22: No. 10917; Chem. Abstr., 1948, 42: 1638a. "In young rats, the rate of skeletal growth was roughly proportional to the rate of general body growth when caloric restriction was the limiting growth factor."

NUTRITIONAL INFLUENCE - STARVATION (Continued)

2040
Ignatius, K. TIEREXPERIMENTELLE UNTERSUCHUNGEN ÜBER DIE HEILUNG VON KNOCHENBRÜCHEN BEI VITAMINMANGELZUSTÄNDEN UND BEIM HUNGER. Acta Soc. med. fenn. Duodecim, Helsinki, 1947, 23: 28-170. pl. 80 refs. Abstracted in: Excerpta med., Sect. 2, 1949, 2: No. 110. "The effect of lack of vitamins A and B, or both, on the rate of healing of fracture was observed in growing rats; that of the lack of vitamin C, in growing guinea-pigs. Both species were used in the study of the effect of undernutrition." - Excerpta med.

2041
Kellermann, J. H. THE EFFECT OF INTERMITTENT STARVATION ON CALCIFICATION, FOOD UTILIZATION, AND TISSUE COMPOSITION. Onderstepoort J. Vet. Sc., 1939, 12: 319-332. 17 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1940-41, 10: No. 1764.

2042
Keys, A., Brozek, J., Henschel, A., Mickelsen, O. and Taylor, H. L. THE BIOLOGY OF HUMAN STARVATION. Minneapolis, University of Minnesota Press, 1950. Bones and teeth: v. 1, p. 218-232.

2043
Knorr, G. KNOCHENUNTERSUCHUNGEN BEI ALLGEMEINER INANITION. (BEITRAG ZUR FRAGE DER "HUNGEROSTEOPATHIE".) Frankf. Zschr. Path., 1951, 62: 22-38. 25 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1951-52, 21: No. 912; Excerpta med., Sect. 5, 1951, 4: No. 3360.

2044
Park, E. A. and Richter, C. P. TRANSVERSE LINES IN BONE: THE MECHANISM OF THEIR DEVELOPMENT. Bull. Johns Hopkins Hosp., 1953, 93: 234-248. 6 refs. Abstracted in: Biol. Abstr., Balt., 1954, 28: No. 13588. "The line forms because the osteoblasts keep making bone after the cartilage growth has waned.... After the recovery diet is instituted, the line thickens because the osteoblasts make new bone on the pre-existing bony incasement without delay, whereas time is required for the cartilage cells to reestablish their cycle..."

2045
Ruiz-Gijón, J. ÜBER DIE CHEMISCHE ZUSAMMENSETZUNG DER KNOCHEN BEI HUNGERZUSTÄNDEN. Biochem. Zschr., 1941, 308: 59-63. 6 refs. Abstracted in: Chem. Abstr., 1942, 36: 3526[1].

2046
Toverud, K. U. UNDERSØKELSER OVER NYFØDTE BARNS BENSYSTEM. Norsk. mag. laegevid., 1934, 95: 688-704. 18 refs. German translation in: Zschr. Kinderh., 1934, 56: 66-80.

See:

1312 1743 1943

OSTEOGENESIS

see also ENZYME RELATIONSHIPS; ENZYME RELATIONSHIPS - PHOSPHATASE; HORMONAL INFLUENCE - SEX HORMONES, FEMALE, and - PITUITARY; TISSUE TRANSPLANTS; VITAMIN INFLUENCE - VITAMIN C, and - VITAMIN D

2047
Becks, H., Asling, C. W., Collins, D. A., Simpson, M. E. and Evans, H. M. CHANGES WITH INCREASING AGE IN THE OSSIFICATION OF THE THIRD METACARPAL OF THE FEMALE RAT. Anat. Rec., 1948, 100: 577-591. 3 refs. Abstracted in: Biol. Abstr., Balt., 1949, 23: No. 1138; Excerpta med., Sect. 1, 1950, 4: No. 1572.

2048
Becks, H., Asling, C. W., Simpson, M. E. Evans, H. M. and Li, C. H. OSSIFICATION AT THE DISTAL END OF THE HUMERUS IN THE FEMALE RAT. Am. J. Anat., 1948, 82: 203-229. 6 pl. 10 refs. Abstracted in: Biol. Abstr., Balt., 1948, 22: No. 18191; Excerpta med., Sect. 1, 1949, 3: No. 307; Nutrit. Abstr., Aberdeen, 1948-49, 18: No. 2243.

2049
Becks, H., Simpson, M. E. and Evans, H. M. OSSIFICATION AT THE PROXIMAL TIBIAL EPIPHYSIS IN THE RAT. I. CHANGES IN FEMALES WITH INCREASING AGE. Anat. Rec., 1945, 92: 109-119. 3 pl. 9 refs. Abstracted in: Biol. Abstr., Balt., 1945, 19: No. 21752.

2050
*Benoit, J. and Clavert, J. SUR L'EXISTENCE DE DEUX TYPES D'OSSIFICATION NETTEMENT DISTINCTS CHEZ LES OISEAUX. J. physiol., Par., 1951, 43: 645-646.

2051
Bisgard, J. D. OSTEOGENESIS; AN EXPERIMENTAL STUDY. Arch. Surg., 1935, 30: 748-776. 55 refs.

2052
*Borghese, E. ALCUNE OSSERVAZIONI SULLE FASI PIU PRECOCI DELL'OSSIFICAZIONE ENCONDRALE. Arch. ital. anat., 1954, 58: 388-409.

2053
Borghese, E. I LIPIDI NEL PROCESSO DI OSSIFICAZIONE. Zschr. Zellforsch., 1936, 25: 622-654. 2 pl. 86 refs. Abstracted in: Biol. Abstr., Balt., 1937, 11: No. 17135; Chem. Abstr., 1937, 31: 6704[1].

2054
Borghese, E. OBSERVATIONS CYTOLOGIQUES ET CYTOCHIMIQUES À PROPOS DE L'OSSIFICATION ENCHONDRALE. C. rend. Ass. anat., (1952) 1953, 39.meet., 441-447. 13 refs.

2055
Camurati, C. and Tessarolo, G. STUDI SPERIMENTALI SULLA METACROMASIA DELLA CARTILAGINE DI ACCRESCIMENTO NELLA CAVIA. Minerva ortop., Tor., 1953, 4: 91-95. 18 refs. Abstracted in: Excerpta med., Sect. 9, 1954, 8: No. 616. "During the various phases of ossification chromotrophic variations were demonstrated in the epiphyseal cartilages by means of the metachromatic reaction and various solutions of toluidine blue buffered at various pH values." - Excerpta med.

2056
Cartier, P. ETAT ACTUEL DU PROBLÈME BIOCHIMIQUE DE L'OSSIFICATION. Rev. orthop., Par., 1947, 33: 261-272. 30 refs. Abstracted in: Excerpta med., Sect. 2, 1948, 1: No. 1291; Ber. ges. Physiol., 1949, 137: 90. A general review and discussion.

2057
Cartier, P. ÉTUDE BIOMÉTRIQUE DE L'OSSIFICATION. C. rend. Soc. biol., 1946, 140: 391-393. 2 refs. Abstracted in: Chem. Abstr., 1947, 41: 4551[b]. Determinations were made of the principal constituents of rat femurs at ages 20 to 150 days. Mineralization was found to increase rapidly after the 45th day which was interpreted as indicating the direct action of sex hormones on bone formation. Bone phosphatase activity was greatest about the 20th day and phosphatase was considered to play only a secondary role in mineralization. Modifications in the composition of the protein matrix were due to the action of the protease system of the bone marrow and favored the fixation of bone salts.

OSTEOGENESIS (Continued)

2058
Crétin, A. DÉTAILS HISTOCHIMIQUES DE L'OSTÉOGÉNÈSE. C. rend. Ass. anat., 1937, 32: 140-144.

2059
Dallemagne, M. J. LE DÉPOT DES MATIÈRES MINÉRALES DANS L'OS EN FORMATION. Acta biol. belg., 1942, 2: 95-99. 4 refs. The periosteum of rabbit tibiae was isolated from the bone by a thin sheet of stainless steel or by a piece of bladder mucosa and the tibiae wrapped in a band of hypertrophic periosteum which, in 20 to 30 days, formed a bony cuff. This was removed at intervals up to 90 days, and determinations were made of the total content and relative proportions of calcium, phosphorus, magnesium and nitrogen. The findings are enumerated and interpretations are suggested. No difference was observed between experiments in which steel was used to isolate the periosteum and those in which bladder mucosa was used.

2060
Deltour, G. H. LE MÉCANISME BIOCHIMIQUE DE L'OSSIFICATION. Rev. rhumat., Par., 1949, 16: 362-365. 13 refs. Abstracted in: Excerpta med., Sect. 5, 1950, 3: No. 2612.

2061
Derivaux, J. DONNÉES ACTUELLES SUR LA BIOCHIMIE DE L'OSSIFICATION. Ann. méd. vét., Brux., 1948, 92: 129-146. 46 refs.

2062
Dubreuil, G., Charbonnel, [M.] and Massé, [L.] LES PROCESSUS DE L'OSTÉOGÉNÈSE. Arch. fr. belg. chir., 1936, 35: 171-176.

2063
Fang, H. C., Yuan, Y. K. and Miltner, L. J. OSTEOGENIC POWER OF TIBIAL PERIOSTEUM. Proc. Soc. Exp. Biol., N. Y., 1934, 31: 1239-1240. 1 ref.

2064
Fogliati, E. L'OSTEOGENESI NELLA CONCEZIONE MODERNA. Med. internaz.., Milano, 1948, 56: 32-42. 17 refs. Abstracted in: Excerpta med., Sect. 1, 1949, 3: No. 599. Critical review of current theories of experimental osteogenesis.

2065
Fontaine, R. QUELQUES RÉFLEXIONS SUR LA BIOLOGIE DE LA GREFFE OSSEUSE. A PROPOS DU RAPPORT DE M. LE PROF. F. ALBERT. Rapp. Cong. Soc. internat. chir., 1938, 11.Congr., 1: 546-562. 7 refs. A defense of the theories of Leriche and Policard on osteogenesis and on interosseous calcium transference. The article is an answer to the criticism of Prof. F. Albert.

2066
Giuliani, G. OSSIFICAZIONE CONNETTIVALE ED OSSIFICAZIONE ENCONDRALE OTTENUTE SPERIMENTALMENTE; RICERCHE CHIMICHE, RADIOLOGICHE, ISTOLOGICHE. Arch. ital. chir., 1932, 31: 268-300. 18 refs.

2067
Grigorescu, I. I. OSIFICAŢIA IN LUMINA NOILOR CERCETARI. Spitalul, 1935, 55: 24-27. A brief survey of Western theories on ossification.

2068
IAsvoin, G. K SRAVNITEL'NOI GISTOLOGII KROVI I SOEDINITEL'NOI TKANI. XII. O VOZNIKNOVENII OSNOVNOGO VESHCHES TVA KOSTI U MLEKOPITAIUSHCHIKH. [COMPARATIVE HISTOLOGY OF BLOOD AND CONNECTIVE TISSUE. XII. ORIGIN OF THE BASIC BONE SUBSTANCE IN MAMMALS] Arch. sc. biol., Moskva, 1935, 37: 553-576. 39 refs. French summary.

2069
Kiszely, G. A SZERVES SEJTEK KÖZÖTTI ÁLLOMÁNY JELENTÖSÉGE A CSONTKÉPZÉSBEN. [IMPORTANCE OF THE INTERCELLULAR ORGANIC SUBSTANCE IN BONE FORMATION] Orvostud. közl., 1944, 5: 255. An abstract.

2070
KÜntscher, G. NEUERE ERKENNTNISSE ÜBER DAS GESCHEHEN BEI DER KNOCHENBRUCHHEILUNG. Arch. klin. Chir., 1951, 267: 586-592. Abstracted in: Excerpta med., Sect. 5, 1952, 5: No. 292. "The author is convinced of the existence of an osteogenetic substance, produced by living bone cells in conditions calling for new formation such as mechanical irritation, fractures, etc. Periosteum and endosteum especially react to the presence of this 'hormone'. Chemical changes (pH) stimulate the production. In fractures, treated with medullary nails, the osteogenetic substance may leak out along the nail and give rise to the formation of the 'cap' that is often seen at its end." - Excerpta med.

2071
Lacroix, P. LES MÉCANISMES ÉLÉMENTAIRES DE L'OSSIFICATION ENDOCHONDRALE. Arch. biol., Par., 1945, 56: 351-382. pl. 33 refs.

2072
Lacroix, P. ORIENTATION DES RECHERCHES RÉCENTES SUR L'OSTÉOGENÈSE. Presse méd., 1949, 57: 1177-1178.

2073
Lacroix, P. TENTATIVO DI INTERPRETAZIONE DELLE OSSIFICAZIONI SPERIMENTALI. Arch. ital. chir., 1949, 72: 124-130.

2074
Leriche, R. and Policard, A. POSITION ACTUELLE DU PROBLÈME DE L'OSTÉOGÉNÈSE; A PROPOS DE CRITIQUES RÉCENTES. Presse méd., 1934, 42: 169-172. 4 refs. Current theories of the mechanism of osteogenesis: role of interstitial fluids versus osteoblast secretion theory.

2075
McLean, F. C. OSTEOGENESIS. Tr. Conf. Metab. Interrelat., 1951, 3.Conf., 51-54. 12 refs.

2076
Ougaroff, A. A. BEITRÄGE ZUR KENNTNIS DER ENTWICKLUNG DES ZELLFREIEN KNOCHENGEWEBES. Zschr. mikr. anat. Forsch., 1931, 26: 327-346. 8 refs.

2077
Pegullo, J. LES PHÉNOMÈNES INTIMES DE L'OSSIFICATION. Afrique fr. chir., 1950, No. 6, 231-244. 21 refs. A review of current theories of the nature of bone and of the biochemical processes of ossification.

2078
Roche, J. and Mourgue, M. PREMIÈRES ÉTAPES DE L'OSSIFICATION ET FORMATION DU "SEL DE L'OS." C. rend. Soc. biol., 1943, 137: 451-452. 1 ref. Abstracted in: Nutrit. Abstr., Aberdeen, 1945-46, 15: No. 573; Chem. Abstr., 1945, 39: 2550[4].

2079
Stephenson, N. R. THE PHYSIOLOGY OF BONE FORMATION. Univ. Toronto M. J., 1945, 22: 217-223.

2080
Stettner, E. OSSIFICATIONSFRAGEN. Mschr. Kinderh., 1932, 52: 444-446. Aussprache: p. 445-446.

OSTEOGENESIS (Continued)

2081
Verne, J., Verne-Soubiran, A. and Verne, J.-M. ACTION DU PLASMA DE CHIEN PORTEUR D'UNE DÉRIVATION BILIAIRE SUR LES PROCESSUS D'OSSIFICATION DANS LES CULTURES IN VITRO. Bull. histol. appl., Lyon, 1940, 17: 109-122. 4 pl. 4 refs.

2082
Zawisch, C. DIE FRÜHE HISTOGENESE DER MENSCHLICHEN CLAVICULA. Zschr. mikr. anat. Forsch., 1952, 59: 187-226. 33 refs. Russian, English and French summaries. There are three definite periods of early osteogenesis. They "are termed as endodesmal-osteoblastic, pseudo chondroblastic and chondroblastic. They correspond to a period of primary development, growth and maturation respectively. The skeletogenic tissues of these periods, some of which hitherto unknown in man, are described."

2083
Zawisch, C. DIE VERKNOCHERUNG DER KNORPELIG VORGEBILDETEN PLATTEN KNOCHEN. Acta anat., 1953, 19: 384. An abstract.

See:

4	83	158	159	165
167	168	211	316	407
441	445	458	492	507
513	676	767	774	904
911	920	1002	1012	1085
1120	1286	1323	1333	1348
1352	1488	1489	1506	1879
1975	2004	2021	2405	2406
2424	2425	2426	2694	2746
2754	2764	2765	2769	2770
2967				

PHYSICAL PROPERTIES

2084
*Ascenzi, A. CONTRIBUTO ALLO STUDIO DELLE PROPRIETÀ OTTICHE DELL'OSSO UMANO NORMALE. II. SULLA BIRIFRANGENZA TOTALE. Atti Accad. naz. Lincei, Rendic., Class. sc. fis., ser. 8A, 1948, 5: 100-107. Abstracted in: Biol. Abstr., Balt., 1949, 23: No. 29327.

2085
Ascenzi, A. CONTRIBUTO ALLO STUDIO DELLE PROPRIETÀ OTTICHE DELL'OSSO UMANO NORMALE. III. SULLA BIRIFRANGENZA DI FORMA E LA BIRIFRANGENZA PROPRIA. Atti Accad. naz. Lincei, Rendic., Class sc. fis., ser. 8A, 1948, 5: 171-180.

2086
Bell, G. H. BONE AS A SKELETAL STRUCTURE. Brit. J. Nutrit., 1952, 6: 405-409. 21 refs. A review concerned with "the search for the factors determining the shape of bone, and... the measurement of the physical properties of bone."

2087
Bell, G. H. and Chambers, J. W. BONE STRENGTH AND ASH CONTENT OF FEMORA OF RATS ON RACHITOGENIC DIET. Biochem. J., Lond., 1945, 39: Proc., 37. An abstract.

2088
Bell, G. H., Chambers, J. W. and Dawson, I. M. THE MECHANICAL AND STRUCTURAL PROPERTIES OF BONE IN RATS ON A RACHITOGENIC DIET. J. Physiol., Lond., 1947, 106: 286-300. 30 refs. Abstracted in: Chem. Abstr., 1947, 41: 6954[a]; Biol. Abstr., Balt., 1948, 22: No. 9083. "The results of all tests - mechanical, chemical and X-ray - suggest that there is no disturbance of the fundamental plan of ossification in rats suffering from rickets. The weakness of the rachitic bone is sufficiently explained by the reduction in organic material relative to the organic material."

2089
Bell, G. H., Chambers, J. W. and Weir, J. B. de V. ELASTIC PROPERTIES OF NORMAL AND RACHITIC RAT FEMORA. J. Physiol., Lond., 1949, 108: Proc., 19. An abstract.

2090
Brooks, G. SUR LA MATIÈRE MINÉRALE PHOSPHORESCENTE DES TISSUS OSSEUX DE GRENOUILLE (RANA ESCULENTA L.). C. rend. Acad. sc., 1937, 204: 1447-1448. 4 refs. Abstracted in: Chem. Abstr., 1937, 31: 5880[9]. "The manganese plays an important role in the phosphorescence of the mineral matter of the bony tissue compared to zinc which is present in small quantity. Manganese must certainly not remain passive in the normal physiology of ossification."

2091
Dempster, W. T. and Liddicoat, R. T. COMPACT BONE AS A NON-ISOTROPIC MATERIAL. Am. J. Anat., 1952, 91: 331-362. 32 refs. Abstracted in: Biol. Abstr., Balt., 1954, 28: No. 15971. Stiffness or modulus of elasticity and the tensile and compressive strengths of both dry and water soaked specimens of compact bone were determined.

2092
Evans, F. G. and Lebow, M. REGIONAL DIFFERENCES IN SOME OF THE PHYSICAL PROPERTIES OF THE HUMAN FEMUR. J. Appl. Physiol., 1951, 3: 563-572. 21 refs. Abstracted in: Excerpta med., Sect. 9, 1952, 6: No. 7096; Biol. Abstr., Balt., 1951, 25: No. 24022.

2093
Evans, F. G. and Lebow, M. STRENGTH AND OTHER PHYSICAL PROPERTIES OF LONG BONES OF THE INFERIOR EXTREMITY. Fed. Proc., Balt., 1951, 10: 41. An abstract.

2094
Evans, F. G. and Lebow, M. THE STREGTH OF HUMAN COMPACT BONE AS REVEALED BY ENGINEERING TECHNICS. Am. J. Surg., 1952, 83: 326-331. 12 refs. Comparative studies of the tensile strength and percentage elongation were made in wet and dried sections of cadaveric compact bone of the extremities, particularly of the femur. All fibulas tested exceeded the femurs in tensile strength and energy-absorbing capacity.

2095
Evans, F. G. and Lebow, M. THE TENSILE STRENGTH OF THE COMPACTA OF THE HUMAN FEMUR. Anat. Rec., 1950, 106: 192. An abstract.

2096
Evans, F. G. and Lissner, H. R. 'STRESSCOAT' DEFORMATION STUDIES OF THE FEMUR UNDER STATIC VERTICAL LOADING. Anat. Rec., 1948, 100: 159-190. 27 refs. Abstracted in: Excerpta med., Sect. 1, 1949, 3: No. 241. "The final spread of the cracks on the neck and upper two-thirds of the femoral shaft confirm results obtained by other methods. The experiments prove that fractures occur mainly by tensile strains." The bones of individuals over 60 did not support so heavy a load as the bones of younger persons.

2097
Evans, F. G., Lissner, H. R. and Pedersen, H. E. 'STRESSCOAT' ANALYSIS OF THE HUMAN FEMUR. J. Michigan M. Soc., 1948, 47: 305. Time of appearance of cracks under static loading indicates the femur is a uniform strength member and that it behaves as an elastic body. The cracks appear first at sites of tension. Comparison of the "stresscoat" pattern with fractures shows that fractures occur under tension.

PHYSICAL PROPERTIES (Continued)

2098
Evans, F. G., Pederson, H. E. and Lissner, H. R. THE ROLE OF TENSILE STRESS IN THE MECHANISM OF FEMORAL FRACTURES. J. Bone Surg., 1951, 33A: 485-501, 504. 24 refs. Discussion: p. 501, 504.

2099
Hábler, C. and Reiss, O. EXPERIMENTELLE UNTERSUCHUNGEN ÜBER DIE FESTIGKEIT DES KNOCHENS IM NORMALEN UND IM ZUSTAND DER BRUCHHEILUNG. I. DIE MATERIALVERHALTNISSE NORMALER RÖHRENKNOCHEN UND IHRE BEZIEHUNGEN ZUM KALK- UND WASSERGEHALT. Deut. Zschr. Chir., 1936, 246: 486-493. 4 refs. In dogs bone resistance was found to vary with the shape of the individual bone, age and weight of the animal, and bone calcium and water content.

2100
Hoffmann, J. FLUORESZENZEN AN MENSCHLICHEN KNOCHENASCHEN. Biochem. Zschr., 1942, 311: 247-251. 10 refs. Abstracted in: Biol. Abstr., Balt., 1947, 21: No. 348; Chem. Abstr., 1943, 37: 2659[6].

2101
*Hoshijima, S. ON THE PHOSPHORESCENCE IN HUMAN TISSUES. I. THE PROOF OF THE PHOSPHORESCENCE IN NORMAL HUMAN TISSUES AND ITS MEASUREMENT. Sc. Papers Inst. Phys. Chem. Res., Tokyo, 1933, 20: 109-113. 2 pl. Abstracted in: Biol. Abstr., Balt., 1934, 8: No. 17568; Chem. Abstr., 1933, 27: 2970.

2102
Koch, J. C. THE LAWS OF BONE ARCHITECTURE. Anat. Rec., 1949, 103: 476. An abstract. Compact human bone has an ultimate strength of (in pounds per square inch) tension 17,000, compression 14,000, shear 10,000, and torsion 7,000.

2103
Lindsay, M. K. OBSERVATIONS ON FRACTURE HEALING IN RATS. J. Bone Surg., 1934, 16: 162-167. 2 refs.

2104
Lindsay, M. K. and Howes, E. L. THE BREAKING STRENGTH OF HEALING FRACTURES. J. Bone Surg., 1931, 13: 491-501. 7 refs.

2105
Linggi, A. DIE BRUCKFESTIGKEIT DER KNOCHEN DES HUNDES. 73p. Affoltern, Weiss, 1951. (Inaug.-Diss.-Zürich).

2106
McKeown, R. M., Lindsay, M. K., Harvey, S. C. and Howes, E. L. THE BREAKING STRENGTH OF HEALING FRACTURED FIBULAE OF RATS. II. OBSERVATIONS ON A STANDARD DIET. Arch. Surg., 1932, 24: 458-491. 7 refs. Abstracted in: Biol. Abstr., Balt., 1933, 7: No. 19562.

2107
Maj, G. and Toaiari, E. LA RESISTENZA MECCANICA DEL TESSUTO OSSEO LAMELLARE COMPATTO MISURATA IN VARIE DIREZIONI. Boll. Soc. ital. biol. sper., 1937, 12: 83-86.

2108
MECHANICAL PROPERTIES OF HUMAN BONES. J. Franklin Inst., 1949, 247: 597.

2109
*Mélon, J. and Dallemagne, M. J. LA BIREFRINGENCE DE L'OS TOTAL. Bull. Soc. sc., Liege, 1944, 13: 254-261. Abstracted in: Chem. Abstr., 1948, 42: 7815[h].

2110
Milch, H. PHOTO-ELASTIC STUDIES OF BONE FORMS. J. Bone Surg., 1940, 22: 621-626. 2 refs. Abstracted in: Biol. Abstr., Balt., 1941, 15: No. 14900.

2111
Panning, G. ZUR FRAGE DER WIDERSTANDSFÄHIGKEIT DES KNOCHENGEWEBES GEGEN GEWALTEINWIRKUNGEN IM LEBEN UND NACH DEM TODE. Beitr. gerichtl. Med., 1939, 15: 84-94. 58 refs. A discussion, based on the literature, of the relative resistance of bone to force in the living and the dead.

2112
Rouvière, H. DE LA RÉSISTANCE DES OS ET DU SIÈGE DES FRACTURES DES OS LONGS PAR CAUSE INDIRECTE. Presse méd., 1938, 46: 849-850. 5 refs.

2113
Schiller, A. A. and Struck, H. C. TENSILE STRENGTH OF TIBIAE OF HEALED RACHITIC AND NORMAL RATS. Proc. Soc. Exp. Biol., N. Y., 1941, 46: 198-200. 1 ref. Abstracted in: Biol. Abstr., Balt., 1941, 15: No. 10638,

2114
Schiller, A. A., Struck, H. C. and Reed, C. I. THE INFLUENCE OF RICKETS AND OF THE HEALING OF RICKETS ON THE MECHANICAL PROPERTIES OF THE TIBIAE OF RATS. Am. J. Physiol., 1942, 138: 27-33. 5 refs. Abstracted in: Biol. Abstr., Balt., 1943, 17: No. 13232; Nutrit. Abstr., Aberdeen, 1943-44, 13: No. 428.

2115
Selkov, E. A. and Balygin, I. E. OB ELEKTROFIZICHESKIKH SVOISTVAKH KOSTNOI TKANI. [ELECTRO-PHYSICAL PROPERTIES OF THE BONE TISSUE] Biull. eksp. biol. med., 1939, 7: 377-379. 2 refs. French translation in: Bull. biol. méd. exp. URSS, 1939, 7: 385-387.

2116
Sestini, F. OSSERVAZIONI SUL COMPORTAMENTO DEL TESSUTO OSSEO AL MICROSCOPIO A LUMINESCENZA. Boll. Soc. ital. biol. sper., 1947, 23: 651-653. Abstracted in: Excerpta med., Sect. 1, 1949, 3: No. 807. The phosphorescence of bone in man of varying ages, of the calf and cynocephalus is studied under various conditions with the Reichert apparatus in Wood light. It is concluded that the phosphorescence is connected more with the organic than with the inorganic components.

2117
Sestini, F. OSSERVAZIONI SUL COMPORTAMENTO DEL TESSUTO OSSEO AL MICROSCOPIO A LUMINESCENZA. Boll. Soc. ital. biol. sper., 1947, 23: 835-836. Further studies of bone phosphorescence. The author confirms his earlier conclusions that the greater phosphorescence is shown by the organic substance.

2118
Sestini, F. RICERCHE CON IL MICROSCOPIO DI FLUORESCENZA SUL TESSUTO OSSEO. Atti Soc. ital. anat., (1947) 1948, 9: 170-173. Studies in Wood light of the fluorescence of the bones of man, the calf and the cynocephalus demonstrated that the organic substance of bone is the more fluorescent and that of the inorganic constituents calcium carbonate is the most fluorescent. Bone fluorescence may be modified by heat or by various orientations of the osseous constituents.

2119
Sestini, F. and Carere-Comes, O. RICERCHE SULLA FLUORESCENZA DELL'OSSO UMANO IN CONDIZIONI NORMALI E PATOLOGICHE. Atti Accad. fisiocr. Siena, 1939, 11.ser., 7: 72-74. 4 refs.

2120
Steindler, A. PHYSICAL PROPERTIES OF BONE. Arch. Phys. Ther., 1936, 17: No. 6, 336-345. Specific gravity, elasticity and strength are discussed.

PHYSICAL PROPERTIES (Continued)

2121
THE STRENGTH OF BONE. (Editorial). J. Am. M. Ass., 1936, 107: 132. 1 ref. With particular reference to Clarke's report stating that under certain conditions the strength of bone depends more on the organic part of this tissue than on the degree to which the inorganic part of bone approaches normal composition.

2122
Virgin, W. J. EXPERIMENTAL INVESTIGATIONS INTO THE PHYSICAL PROPERTIES OF THE INTERVERTEBRAL DISC. J. Bone Surg., 1951, 33B: 607-611. 25 refs. Abstracted in: Biol. Abstr., Balt., 1952, 26: No. 15276.

2123
Weir, J. B. de V., Bell, G. H. and Chambers, J. W. THE STRENGTH AND ELASTICITY OF BONE IN RATS ON A RACHITOGENIC DIET. J. Bone Surg., 1949, 31B: 444-451. 8 refs.

See:

215 252 477 1123 1410
1412 1428 1665 1938 1948
1954 1961 1996 2026 2297
2661

PHYSICAL PROPERTIES - VARIATIONS, AGE AND REGIONAL

2124
Ingalls, N. W. OBSERVATIONS ON BONE WEIGHTS. Am. J. Anat., 1931, 48: 45-98. 27 refs. Abstracted in: Biol. Abstr., Balt., 1932, 6: No. 11312. "The observations recorded are based on the dry weights of all the bones of the body, either individually or in functional groups, from a series of 100 adult white males 19-78 years old. Although there is much variation in the behavior of different bones, the tendency is for the weight to rise to what may be called the peak of development, decline then, and rise a second time as early age changes add to the weight, and finally subside in the atrophy of old age." - Biol. Abstr.

2125
Maj, G. OSSERVAZIONI SULLE DIFFERENZE TOPOGRAFICHE DELLA RESISTENZA MECCANICA DEL TESSUTO OSSEO DI UNO STESSO SEGMENTO SCHELETRICO. Monit. zool. ital., 1938, 49: 139-149. 9 refs.

2126
Maj, G. RESISTENZA MECCANICA DEL TESSUTO OSSEO A DIVERSI LIVERLLI DI UNO STESSO OSSO. Boll. Soc. ital. biol. sper., 1938, 13: 413-415. 3 refs.

2127
Maj, G. STUDIO SULLE VARIAZIONI INDIVIDUALI E TOPOGRAFICHE DELLA RESISTENZA MECCANICA DEL TESSUTO OSSEO DIAFISARIO UMANO IN DIVERSE ETÀ. Arch. ital. anat., 1942, 47: 612-633. 17 refs.

See:

2092 2096 2099 2121

PREGNANCY - EFFECT ON BONE

2128
Bodansky, M. and Duff, V. B. RELATION OF PARATHYROID FUNCTION AND DIET TO THE MINERAL COMPOSITION OF THE BONES OF RATS AT THE CONCLUSION OF PREGNANCY. J. Nutrit., 1941, 21: 235-242. 4 refs. Abstracted in: Chem. Abstr., 1941, 35: 5941[6]; Biol. Abstr., Balt., 1941, 15: No. 12139.

2129
Bodansky, M., Campbell, K. and Duff, V. B. NUTRITIONAL VS. ENDOCRINE FACTORS IN BONE METABOLISM DURING PREGNANCY. Texas J. M., 1938, 34: 339-343. 28 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1938-39, 8: No. 4962.

2130
Ellinger, G. M., Duckworth, J., Dalgarno, A. C. and Quenouille, M. H. SKELETAL CHANGES DURING PREGNANCY AND LACTATION IN THE RAT: EFFECT OF DIFFERENT LEVELS OF DIETARY CALCIUM. Brit. J. Nutrit., 1952, 6: 235-253. 10 refs. Abstracted in: Excerpta med., Sect. 2, 1953, 6: No. 5501.

2131
Erdheim, J. BIOLOGIE DER SCHWANGERSCHAFTSZELLEN UND IHRE BEZIEHUNG ZUM SKELET. Frankf. Zschr. Path., 1936, 49: 452-478. 22 refs.

2132
Fontana, G. SULLA COMPOSIZIONE MINERALE DELLE OSSA IN GRAVIDANZA. NOTA PREVENTIVA. Mschr. Geburtsh. Gyn., 1942, 113: 57-61. 21 refs. Abstracted in: Chem. Abstr., 1944, 38: 3703[6]. In pregnant guinea pigs the mineral composition of the femurs was determined at various intervals. Practically no change in mineral content during gestation was observed.

2133
Warnock, G. M. and Duckworth, J. CHANGES IN THE SKELETON DURING GESTATION AND LACTATION IN THE RAT. Biochem. J., Lond., 1944, 38: 220-224. 13 refs. Abstracted in: Biol. Abstr., Balt., 1945, 19: No. 18477; Nutrit. Abstr., Aberdeen, 1944-45, 14: No. 2483.

See:

874

REGENERATION AND REPAIR

see also HORMONAL INFLUENCE - ADRENAL CORTEX, - THYMUS, SPLEEN AND PINEAL BODY, and - THYROID; MECHANICAL INFLUENCE; NEURAL INFLUENCE; TISSUE TRANSPLANTS; VITAMIN INFLUENCE - VITAMIN C, and - VITAMIN D

2134
Aizupet, M. P. ISSLEDOVANIE REGENERATSIONNYKH PROTSESSOV RAZVIVAIUSHCHIKHSIA KOSTEI. [STUDY OF THE REGENERATIVE PROCESSES IN DEVELOPING BONES] Bull. Acad. sc. URSS, sér. biol., 1943, 332-342. 24 refs. English summary.

2135
Annersten, S. UNTERSUCHUNGEN ÜBER DIE ALKALISIERUNG IM FRAKTURCALLUS. Arch. klin. Chir., 1942, 203: 122-136. 17 refs. In young rabbits experimental studies were made of variations in the acid-base balance of the fracture callus.

2136
*Axhausen, W. DIE KNOCHENREGENERATION - EIN ZWEIPHASISCHES GESCHEHEN! Zbl. Chir., 1952, 77: 435-442. Abstracted in: Excerpta med., Sect. 9, 1952, 6: No. 7099.

2137
Baker, S. L. THE HISTOLOGY OF CALLUS. J. Bone Surg., 1948, 30B: 207. An abstract.

2138
Barber, C. G. A FEW HISTOCHEMICAL CONSIDERATIONS RELATIVE TO BONE GROWTH AND REPAIR. Arch. Surg., 1948, 57: 862-870. 19 refs. Abstracted in: Chem. Abstr., 1953, 47: 5523[f]. A review concerned chiefly with the healing of fractures.

2139
Bauer, G. [C. H.] INFLUENCE OF EARLIER FRACTURE ON BONE-REPAIR IN RATS STUDIED BY MEANS OF RADIOCALCIUM. Acta orthop. scand., 1952, 22: 85-87. 12 refs. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 16389. In rats, the uptake of radiocalcium in the fracture of tibia was unaffected by previous fracture of the humerus.

2140
Becker, F. KLINISCHE UND EXPERIMENTELLE UNTERSUCHUNGEN ÜBER EIN BESONDERES REGENERATIONSVERMÖGEN IN DER EPIPHYSENNARBENZONE LANGER RÖHRENKNOCHEN. Deut. Zschr. Chir., 1941, 254: 488-541. 66 refs. Abstracted in: Biol. Abstr., Balt., 1945, 19: No. 13021. Clinical and experimental research on a special power of regeneration in the epiphyseal juncture zone of the long bones.

2141
Bohr, H. and Sørensen, A. H. STUDY OF FRACTURE HEALING BY MEANS OF RADIOACTIVE TRACERS. J. Bone Surg., 1950, 32A: 567-574. 13 refs. Abstracted in: Chem. Abstr., 1953, 47: 2867f; Biol. Abstr., Balt., 1951, 25: No. 1828. "Experiments with radiophosphorus and radiocalcium administered to rats at different periods during the healing of fractures, show increased activity of the bone ash from the fractured bone as compared with the ash from homologous intact bone of the same animal. Further investigations indicate that this effect is due mostly to an increased exchange of phosphorus and calcium between the plasma and the mineral substance of the bone. Measurements of the separated epiphysis indicate that this process involves the whole bone and the proximal epiphysis of the tibia as well." Reports by other authors of increased metabolic activity involving all of the skeleton were not confirmed.

2142
Bourne, G. H. THE RELATIVE IMPORTANCE OF PERIOSTEUM AND ENDOSTEUM IN BONE HEALING AND THE RELATIONSHIP OF VITAMIN C TO THEIR ACTIVITIES. Proc. R. Soc. M., Lond., 1944, 37: 275-279. 12 refs. Abstracted in: Chem. Abstr., 1944, 38: 5562^{9}; Nutrit. Abstr., Aberdeen, 1944-45, 14: No. 2303.

2143
Cavallini Francolini, C. and Carbonera, D. AZIONE DEL SIERO RETICOLO-STIMOLANTE UMANO SULLA FORMAZIONE DEL CALLO DI FRATTURA (RICERCHE SPERIMENTALI). Rass. internaz. clin. ter., 1950, 30: 195-199. Abstracted in: Excerpta med., Sect. 5, 1951, 4: No. 2980. In young rabbits histological studies were made of the effects on fracture healing of a human "reticulo-stimulating" serum.

2144
Cavayé Hazên, E. and Valdés Santurio, E. R. CONTRIBUCIÓN AL ESTUDIO BIOQUÍMICO DEL HUESO Y DEL CALLO DE FRACTURA. (ESTUDIO QUÍMICO COMPARATIVO ENTRE EL TRATAMIENTO DE LOS FRACTURAS POR IMMOVILIZACIÓN ESCAYOLA Y EL METODO DE KÜNTSCHER). Cir. ap. locomotor, Madr., 1948, 5: 2-17. 31 refs. Abstracted in: Chem. Abstr., 1952, 46: 11419^{g}.

2145
Charpy, P. SUR LA PRÉSENCE DANS LE SANG DES FRACTURÉS D'UNE SUBSTANCE EXCITATRICE DE LA RÉFECTION OSSEUSE. Sang, Par., 1938, 12: 540-541. Abstracted in: Chem. Abstr., 1939, 33: 2963^{5}.

2146
*Crétin, A. CONTRIBUTION À L'ÉTUDE DE L'OSSIFICATION ET LA RÉPARATION DES OS FRACTURÉS. LES CONDITIONS PHYSICO-CHIMIQUES ET LE ROLE DU TISSU ÉLASTIQUE DANS LA RÉPARATION OSSEUSE. 130p. Paris, 1948. (Thèse - Univ., Fac. sc.) Abstracted in: Biol. Abstr., Balt., 1949, 23: No. 3684.

2147
Dallemagne, M. J. LE CALCIUM ET LE PHOSPHORE DANS LA RÉGÉNÉRATION OSSEUSE. Rapp. Cong. Soc. internat. chir., 1938, 11.Congr., 1: 730-733. In rabbits, after sub-periosteal section of the ulna, comparative determinations were made at intervals of the calcium and phosphorus content of the new bone formation, the sectioned ends of the ulna and of the homologous "sympathetic" bone

2148
Dallemagne, M. J. INFLUENCE D'UNE RÉSECTION OSSEUSE SUR LES ÉLÉMENTS MINÉRAUX DU SQUELETTE DU LAPIN ADULTE. RÉSECTIONS OSTÉO-PÉRIOSTÉES SANS RESTAURATION OSSEUSE. Acta biol. belg., 1941, 1: 502-504. An osteo-periosteal resection was made in the mid-diaphysis of the ulna of adult rabbits after electrocoagulation of the resected and surrounding periosteum. No new bone formation occurred and no mineral mobilization was observed in any part of the skeleton.

2149
Danno, K. [EXPERIMENTELLE STUDIEN ÜBER DEN GASSTOFFWECHSEL BEIM KNOCHENBRUCH] Mitt. Med. Ges. Tokyo, 1938, 52: 1086-1117. 43 refs. German abstr., p. 1086.

2150
Danno, K. [KLINISCHE STUDIEN ÜBER DEN GASSTOFFWECHSEL BEI KNOCHENBRÜCHEN UND ANDEREN KNOCHENERKRANKUNGEN] Mitt. Med. Ges. Tokyo, 1938, 52: 1047-1085. 43 refs. German abstr., p. 1047-1048.

2151
Dick, L. THE REGENERATION OF BONE AND CARTILAGE. J. internat. chir., Brux., 1953, 13: 175. Translations into German, Spanish, French and Italian, p. 175-178. A short survey of the study of the growth and repair of bone. Normal bone is in a constant state of growth, resorption and replacement giving it the power of regeneration and repair. Its development from pluripotential mesenchymatous cells is affected by many factors, nutritional, hormonal, mechanical and chemical.

2152
Downs, W. G., Jr. and McKeown, R. M. HISTOLOGY OF HEALING FRACTURES IN RATS ON NORMAL DIETS. Arch. Surg., 1932, 25: 94-107. 13 refs. Abstracted in: Biol. Abstr., Balt., 1934, 8: No. 16549.

2153
Emiliani, P. BLOCCO DEL SISTEMA RETICOLO ENDOTELIALE E SUA VALUTAZIONE FUNZIONALE NELLA FORMAZIONE DEL CALLO OSSEO. Gazz. internaz. med. chir., 1939, 49: 447-463. 46 refs.

2154
Enneking, W. F. THE REPAIR OF COMPLETE FRACTURES OF RAT TIBIAS. Anat. Rec., 1948, 101: 515-537. 3 pl. 24 refs. Abstracted in: Biol. Abstr., Balt., 1949, 23: No. 4134. "It was concluded that bone arises from the osteogenic cells lining all the free surfaces of the bone; that cartilage arises from the torn ends of the periosteum; that the periosteal and endosteal responses are of equal value; and that the fractured ends of the bone are joined by an encompassing jacket when union between them is impossible."

2155
Eskelund, V. and Plum, C. M. EXPERIMENTAL INVESTIGATIONS INTO THE HEALING OF FRACTURES. HEALING OF RACTURES OF THE FEMORAL DIAPHYSIS IN RATS. Acta orthop. scand., 1950, 19: 433-475. 27 refs. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 17438. The studies suggest that the epithelial cells of the bladder contain a substance which promotes the healing of fractures. Extracts of liver and heterologous brain tissue had no definite effect and heterologous stomach tissue no effect at all.

REGENERATION AND REPAIR (Continued)

2156
Fiocca, S. and Rusconi, A. RICERCHE SULLA METACROMASIA. NOTA I. IL COMPORTAMENTO DELLE SOSTANZE METACROMATICHE NELL'EVOLUZIONE DEL CALLO NELLE FRATTURE SPERIMENTALI. Arch. chir. ortop., 1952, 17: 214-218. 21 refs.

2157
*Fontaine, R., Chevallier, A., Mandel, P. and Wiest, E. ÉTUDE EXPÉRIMENTALE, HISTOLOGIQUE ET BIOCHIMIQUE DE LA RÉPARATION DES FRACTURES CHEZ LE CHIEN. Lyon chir., 1950, 45: 145-160. Abstracted in: Excerpta med., Sect. 1, 1950, 4: No. 1348.

2158
Freund, E. HISTOLOGISCHE UNTERSUCHUNGEN ÜBER DEN HEILUNGSVORGANG BEI EINGEKEILTEN SCHENKELHALSBRÜCHEN. Arch. orthop. Unfallchir., 1930, 28: 489-520. 32 refs. Abstracted in: Biol. Abstr., Balt., 1932, 6: No. 17304. Histologic studies of the healing processes in seven cases of impacted fracture of the human femur neck.

2159
Galakhov, E. V. NEKOTORYE DETALI OKOSTENENIIA KOSTNOĬ MOZOLI (EKSPERIMENTAL'NOE ISSLEDOVANIE). [SOME DETAILS OF THE CALLUS OSSIFICATION (EXPERIMENTAL STUDY)] Ortop. traumat., Kharkov, 1933, 7: No. 2, 49-53. 8 refs.

2160
Gelbke, H. and Egbert, G. TIEREXPERIMENTELLE STUDIE AN DER VERLETZTEN EPIPHYSENFUGE. Zschr. Orthop., 1953, 83: 201-219. 14 refs. Abstracted in: Excerpta med., Sect. 9, 1953, 7: No. 6452. Lesions of the epiphyseal cartilage were produced on growing dogs and rabbits by chisel and saw. It was found that "most lesions healed by bone formation" and that "split fractures without dislocation are not followed by the arrested growth or deformities which result from larger injuries." Microscopical findings are presented.

2161
Giangrasso, G. AZIONE DELLA DIETA ACIDA E BASICA SULLA FORMAZIONE DEL CALLO OSSEO NELLE FRATTURE SPERIMENTALI. Riv. pat. sper., 1938, 21: 67-92. 14 refs.

2162
Giangrasso, G. SISTEMA RETICOL-ISTIOCITARIO E VITAMINA C NELLE FRATTURE SPERIMENTALI. Riv. pat. sper., 1939, 23: 1-40. 42 refs. Abstracted in: Chem. Abstr., 1941, 35: 59474.

2163
Giannoni, G. RICERCHE SPERIMENTALI SULLE MODIFICAZIONI DELLA CONCENTRAZIONE IDROGENIONICA NELLA FORMAZIONE DEL CALLO DI FRATTURA. Accad. med., Genova, 1939, 54: 125-146. 15 refs.

2164
Grgune, H. EXPERIMENTELLE UNTERSUCHUNGEN ÜBER ORTLICHEN VERSCHIEBUNGEN DER AKTUELLEN REAKTION BEI KNOCHENBRÜCHEN. Deut. Zschr. Chir., 1931, 230: 324-330. 1 ref.

2165
Haldeman, K. O. and Moore, J. M. INFLUENCE OF A LOCAL EXCESS OF CALCIUM AND PHOSPHORUS ON THE HEALING OF FRACTURES: AN EXPERIMENTAL STUDY. Arch. Surg., 1934, 29: 385-396. 18 refs. Abstracted in: Biol. Abstr., Balt., 1935, 9: No. 16848. "Microscopic examination showed that in normal healing under favorable conditions a continued excess of Ca and P at the site of fracture either did not influence the rate of union or retard it. In delayed healing due to unknown causes, tricalcium phosphate appeared to favor the union. In no case did monocalcium phosphate, dicalcium phosphate or calcium glycerophate have a favorable influence."

2166
Ham, A. W. A HISTOLOGICAL STUDY OF THE EARLY PHASES OF BONE REPAIR. J. Bone Surg., 1930, 12: 827-844. 34 refs. Abstracted in: Biol. Abstr., Balt., 1932, 6: No. 8310.

2167
Ham, A. W. SOME HISTOPHYSIOLOGICAL PROBLEMS PECULIAR TO CALCIFIED TISSUES. J. Bone Surg., 1952, 34A: 701-728. 12 refs. The processes involved in growth and repair are illustrated and discussed.

2168
Hasche-Klünder, R. and Gelbke, H. TIERVERSUCHE ZUR HISTOMECHANIK DER CALLUSBILDUNG ALS KRITIK DER LEHRE KROMPECHERS. Arch. klin. Chir., 1952, 274: 62-87. 86 refs. Abstracted in: Internat. Abstr. Surg., 1953, 97: 284.

2169
Hellner, H. EXPERIMENTELLE UNTERSUCHUNGEN ÜBER DIE WIRKUNG DES PHOSPHORS AUF DAS KNOCHENGEWEBE. Arch. klin. Chir., 1932, 169: 1-16. 26 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1932-33, 2: No. 452. "There is no evidence that phosphorus administration is of any value in promoting callus formation, but theoretically it seems to be of value wherever there is excessive osseous degeneration, as in osteitis fibrosa." - Nutrit. Abstr.

2170
Hellstadius, A. STUDY ON THE FORMATION OF NEW BONE. Acta orthop. scand., 1950, 20: 89-93. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 14030. "It was shown in animal experiments that bone-forming granulation tissue, which develops on the surface of a bone, suffers ill effects if the soft parts are held away from the bone so that they do not come into contact with the granulation tissue. As a result of this separation the non-specific granulation tissue is transformed mainly into connective tissue and only to a minor degree into bone tissue."

2171
Herlyn, K. E., Haas, M. and Rinne, H. KNOCHEN-AN- UND -ABBAU UNTER DER EINWIRKUNG VON KURZWELLEN. Zbl. Chir., 1937, 64: 811-815.

2172
Heusser, H. DIE BIOLOGIE DER FRAKTURHEILUNG. Helvet. chir. acta, 1945, 12: 469-488. Approx. 50 refs. Discussion: 556-563. Abstracted in: Praxis, Bern, 1945, 34: 606; Schweiz. med. Wschr., 1946, 76: 62.

2173
Hoffmeister, W. BLUTKALKSPIEGEL BEI KNOCHENBRÜCHEN UND -ERKRANKUNGEN. Deut. Zschr. Chir., 1933, 240: 414-420.

2174
Imanaga, H., Cho, M., Kurita, I. and Nozaki, N. STUDY ON CA^{45} DISTRIBUTION IN FRACTURED RABBITS AFTER INJECTION OF $CA^{45}CL_2$. Nagoya J. M. Sc., 1952, 15: 141-145. 10^2 refs. Abstracted in: Biol. Abstr., Balt., 1954, 28: No. 934; Chem. Abstr., 1953, 47: 9459h.

2175
Imperati, L. LA CAPACITÀ DI ASSORBIMENTO DEL CALLO DI FRATTURA: RICERCHE SPERIMENTALI. Folia med., Nap., 1938, 24: 887-901. pl. 9 refs.

2176
Kanematsu, T. [ÜBER DEN EINFLUSS AUF DIE HEILUNGSPROZESSE DER KNOCHENBRÜCHE BEI ERHÖHTER FUNKTION DER EPITHELKORPERCHEN DURCH HOMOIOGENE TRANSPRANTATION [SIC!] ODER HETEROGENE EXTRAKTINJEKTION DERSELBEN UNTER GLEICHZEITIGER PERORALER ZUFUHR VON CHLORKALZIUM] Okayama igakkai zassi, 1935, 47: 245-278. 5 pl. 97 refs. German summary, p. 245-246.

2177
Key, J. A. THE EFFECT OF A LOCAL CALCIUM DEPOT ON OSTEOGENESIS AND HEALING OF FRACTURES. J. Bone Surg., 1934, 16: 176-184. 2 refs. Abstracted in: Biol. Abstr., Balt., 1936, 10: No. 884. "Neither calcium phosphate and carbonate in the proportions in which they occur in bone, nor bone powder, made by removing the organic matter from bone, appear to stimulate osteogensis of bone when implanted in a bone defect."

2177a
Korff, K. von. DIE DEGENERATION DES KNOCHENBRUCHES, INSBESONDERE DIE DIFFERENZIERUNG DES LOCKEREN BINDEGEWEBES DER BRUCHSTELLE IN KNORPEL- UND KNOCHENGRUNDSUBSTANZ DES CALLUS. Virchows Arch., 1930, 276: 111-140. 20 refs.

2178
Kotliarevskii, M. L. K VOPROSU O ISTOCHNIKAKH KAL'TSIEVYKH SOLEI INDUSHCHIKH NA POSTROIENIE KOSTNOI MOZOLI. [SOURCES OF CALCIUM SALTS IN THE CALLUS FORMATION] Sborn. nauch. rabot Samarkand. med. inst., 1947, 7: 215-218. Abstracted in: Sovet. med. referat. obozr., Sect. Khir., 1950, No. 5, 63. Experiment with rabbits to determine sources of the calcium and phosphorus salts participating in bone regeneration. It was found that after consumption of local resources of these salts, ions of calcium and phosphorus, under influence of endocrine glands arrive in blood and lymph streams from distal sections of body.

2179
Krompecher, S. DIE BEDEUTUNG DES KNORPELCALLUS. Virchows Arch., 1939, 305: 394-404.

2180
Kubányi, E. CALLUSBILDUNG UND SÄUREBASENGLEICHGEWICHT. Arch. klin. Chir., 1930, 158: 203-213. Abstracted in: Biol. Abstr., Balt., 1932, 6: No. 6893. The formation of callus after experimental fracture was studied in relation to acid-base equilibrium. Guinea pigs and rats were used in the study.

2181
Kling, H. L. UNTERSUCHUNGEN ÜBER DIE CALLUSBILDUNG BEI RATTEN. Helvet. chir. acta, 1951, 18: 64-71. 8 refs. Abstracted in: Excerpta med., Sect. 9, 1952, 6: No. 641. An histological study.

2182
*Küntscher, G. VIEL ODER WENIG CALLUS? Mschr. Unfalh., 1953, 56: 321-331.

2183
Kugelmass, I. N. and Berg, R. N. OSSIFICATION. I. CALLUS FORMATION AND CALCIFICATION. Am. J. Dis. Child., 1931, 41: 236-248. 3 refs. Abstracted in: Biol. Abstr., Balt., 1931, 5: No. 29135; Chem. Abstr., 1931, 25: 2185, "Ossification is a local transformation of fibrous tissue into bone, the constituents of which are derived from the blood. Bone repair is a local rather than a systemic process, and union may therefore be induced or accelerated by local therapeutic measures."

2184
Lacroix, P. OS ET CARTILAGE. J. internat. chir., Brux., 1953, 13: 179. Translations into German, English, Spanish and Italian, p. 180-183. "The mechanisms which take part in the healing of a bone lesion" are illustrated by comparing a fracture site to an intramuscular graft with lacerated periosteum, bruised marrow and bony splinters and observing "what happens to each... when grafted separately at different sites."

2185
Lauber, H. J., Nafziger, H. and Bersin, T. FRAKTUREN UND VITAMIN-C-HAUSHALT. Klin. Wschr., 1937, 16: 1313-1315. Abstracted in: Chem. Abstr., 1938, 32: 1306^{8}.

2186
Leriche, R. DE L'OSTÉOGENÈSE APRÈS OSTÉOLYSE. DES OSTÉOLYSES AVEC RECONSTRUCTION. Progr. méd., Par., 1939, No. 8, 261-266.

2187
Loreto, C. SUL CONTENUTO IN CALCIO DEI SEGMENTI OSSEI SEDE DI FRATTURA SPERIMENTALE. NOTA PREVENTIVA. Ann. ital. chir., 1930, 9: 1283-1289. 4 refs. Abstracted in: Biol. Abstr., Balt., 1932, 6: No. 13431.

2188
May, H. DIE VASKULARISATION GANZER, REPLANTIERTER RADII BEIM HUNDE UND IHRE BEZIEHUNG ZUR KNOCHEN- UND MARK-REGENERATION, ZUM WACHSTUM UND ZUM GELENKKNORPEL. Beitr. klin. Chir., 1934, 160: 30-74. 5 refs. In dogs after subpereosteal reimplantation of the whole radius the implants were injected at intervals with a terpentine mercury solution and the vascularization and marrow regeneration studied at various stages.

2189
Meltzer, H. and Dieffenbach, E. ÜBER DIE ANORGANISCHEN VORGÄNGE BEI DER FRAKTURHEILUNG. Arch. klin. Chir., 1939, 195: 18-29. 23 refs. Abstracted in: Chem. Abstr., 1943, 37: 4514.

2190
Micotti, R. CONTRIBUTO ALLA QUESTIONE DEL COMPORTAMENTO DEL SISTEMA RETICOLO ENDOTELIALE NELLE RIPARAZIONI DELLE FRATTURE OSSEE. (RICERCHE SPERIMENTALI.) Arch. ortop., Milano, 1933, 49: 211-244. Approx. 30 refs. Abstracted in: Biol. Abstr., Balt., 1935, 9: No. 1654.

2191
Mucci, D. GLI ELEMENTI ISTIOCITARI NELLA FORMAZIONE DEL CALLO OSSEO. Chir. org. movim., 1932, 17: 498-508. 16 refs.

2192
Murray, C. R. THE MODERN CONCEPTION OF BONE FROMATION AND ITS RELATION TO SURGERY. J. Dent. Res., 1931, 11: 837-845.

2193
Nunnemacher, R. F. EXPERIMENTAL STUDIES ON THE CARTILAGE PLATES IN THE LONG BONES OF THE RAT. Am. J. Anat., 1939, 65: 253-289. 5 pl. 27 refs. Abstracted in: Biol. Abstr., Balt., 1939, 13: No. 14998.

2194
Paes Vasconcelos, F. CONSOLIDAÇÃO ÓSSEA. Bol. clín. hosp. civ. Lisboa, 1952, 16: 19-30. 6 pl. 2 refs. English summary. Abstracted in: Excerpta med., Sect. 9, 1953, 7: No. 8309. Discussion of the effect of acid-base variations on calcification and bone consolidation. Injection of an alkaline solution at the site of a fracture resulted in rapid consolidation.

2195
Paolucci, F. SUL SISTEMA RETICOLOISTIOCITARIO O DI GOLDMANN NEL CALLO OSSEO (E SULLA FUNZIONE FAGOCITARIA DEI MEGACARIOCITI). RICERCHE SPERIMENTALI. Ann. ital. chir., 1930, 9: 1012-1029. 36 refs. Abstracted in: Biol. Abstr., Balt., 1932, 6: No. 8262.

2196
Papa, A. and Buonomo La Rossa, B. IL TETRAETILAMMONIO NEL PROCESSO DI GUARIGIONE DELLE FRATTURE. Gior. ital. chir., 1950, 6: 611-622. 20 refs. In rabbits with experimental fracture of the radius, a study was made of the effects of intramuscular injections of tetra-ethyl-ammonium chloride. Radiological and histological examinations showed favoravle evolution of the callus with more rapid and better ossification.

2197
Piccoli, B. and Piscitelli, L. L'AZIONE DELL'ISOTERAPIA SUL PROCESSO DI OSTEOGENESI. (RICERCHE SPERIMENTALI). Acta chir. patav., 1951, 7: 278-296. 7 refs. Abstracted in: Excerpta med., Sect. 1, 1953, 7: No. 1929. Subperiosteal rib resection was performed in dogs and placental tissue transplanted to, or some distance from, the resected area. In both cases osteogenesis was faster than in control animals.

2198
Pincussen, L. and Neumann, B. ÜBER BEZIEHUNGEN DER KNOCHENBRUCHHEILUNG ZU CHEMISCHEN VERÄNDERUNGEN IM BLUTE UND IHRE BEEINFLUSSUNG DURCH CALCIUM-VITAMINBEHANDLUNG. Arch. klin. Chir., 1931, 165: 483-494. 7 refs. Abstracted in: Biol. Abstr., Balt., 1932, 6: No. 21881. During fracture healing blood determinations at regular intervals demonstrated a shift in blood cations. In rabbits the shift was to potassium, in man to magnesium. After treatment with Pro Ossa the fluctuations decreased and improved and accelerated callus formation was observed in man and animal.

2199
Polezhaev, L. V. O ZNACHENII SKELETA PRI REGENERATSII KONECHNOSTEI U POZVONOCHNYKH ZHIVOTNYKH. [ROLE OF THE SKELETON IN LIMB REGENERATION IN VERTEBRATES] Doklady Akad. nauk SSSR, 1949, 69: 869-872. 9 refs. In amphibia, the role of the skeleton in regeneration of the extremities differs at various ontogenetic and phylogenetic developmental stages, depending especially upon the degree of destruction of the skeleton. By experimentally increasing destruction, it is possible to obtain an atypical regeneration of the extremities in vertebrates normally incapable of such regeneration.

2200
Polezhaev, L. V. and Ramenskaia, G. P. REGENERATSIIA KONECHNOSTEI U ZHERLIANOK, VYZVANNAIA PRODUKTAMI GIDROLIZA KHRIASHCHA. [THE REGENERATION OF THE LIMBS IN THE BOMBINA BOMBINA PROVOKED BY THE PRODUCTS OF CARTILAGE HYDROLYSIS] Doklady Akad. nauk SSSR, 1950, 70: 141-144. 8 refs.

2201
Policard, A. SUR QUELQUES MÉCANISMES HISTOLOGIQUES ÉLÉMENTAIRES INTERVENANT DANS LA RÉPARATION OSSEUSE. Presse méd., 1940, 48: 409-411. Discussion of the histological mechanisms which take part in bone repair, with special consideration of the role of collagen fibrils.

2202
Pollock, G. A. and Ghormley, R. K. EARLY REPAIR OF BONE: AN EXPERIMENTAL STUDY OF CERTAIN FACTORS. J. Bone Surg., 1941, 23: 273-279. 1 ref. Abstracted in: Biol. Abstr., Balt., 1942, 16: No. 7178.

2203
Pritchard, J. J. REPAIR OF FRACTURES OF THE PARIETAL BONE IN RATS. J. Anat., Lond., 1946, 80: 55-59. 2 pl. 5 refs. Abstracted in: Biol. Abstr., Balt., 1946, 20: No. 12779. "Evidence suggests that new bone formation is initiated by humoral rather than mechanical stimuli in the case of the skull vault."

2204
Pritchard, J. J. STIMULATION OF NEW BONE PRODUCTION. J. Anat., Lond., 1946, 80: 235. From experiments with rats it was concluded that in early fracture repair an essential stimulus to bone regeneration "resides in the inflammatory exudate, after leucocytic emigration has ceased."

2205
Pritchard, J. J. and Ruzicka, A. J. AN EXPERIMENTAL STUDY OF FRACTURE REPAIR IN LACERTA VIVIPARA. J. Anat., Lond., 1950, 84: 69. An abstract.

2206
Pritchard, J. J. and Ruzicka, A. J. COMPARISON OF FRACTURE REPAIR IN THE FROG, LIZARD AND RAT. J. Anat., Lond., 1950, 84: 236-261. 5 pl. 27 refs. A histological study covering: General features of the repair process; time-course of repair and the influence of temperature; the periosteal blastema; the medullary blastema; the parosteal blastema; the organization of the haematoma; replacement of cartilage by bone; calcification; and phosphatase activity.

2207
Provenzale, L. and Pariente, R. L'USO DEL TANNINO NELLE ARTROPLASTICHE (RICERCHE SPERIMENTALI). Policlinoco, 1950, 57: 10-25. 29 refs. Abstracted in: Excerpta med., Sect. 9, 1951, 5: No. 2456. "The cancellous bone of dogs, after removal of the articular cartilage of the knee joint, was bathed in a solution of tannin in dilute alcohol, with a resulting absence of ankylosis. In guinea pigs the same solution was injected around experimental diaphyseal fractures with resulting absence of callus." - Excerpta med.

2208
Radasch, H. E. SENILITY OF BONE AND ITS RELATION TO BONE REPAIR. Surg. Gyn. Obst., 1930, 51: 42-49. Contents: Types of bone. - Medullary index. - Bone repair and regeneration. - Femur. - Tibia. - Senility of bone in relation to bone repair.

2209
Ray, R. D. and Ward, A. A., Jr. A PRELIMINARY REPORT ON STUDIES OF BASIC CALCIUM PHOSPHATE IN BONE REPLACEMENT. Surg. Forum, 1951, p. 429-434. 23 refs. "Synthetic hydroxyapatite crystals have been used to repair surgical defects in the long bones of 3 dogs, trephine holes in the iliac wings of 12 dogs, and trephine holes in the skulls of 16 cats and 6 monkeys. The results of these studies revealed that the crystals were incorporated in the new bone and that they were also replaced in the process of ossification, apparently acting as a matrix for bone formation. ... Healing was not as rapid as the repair observed when the defects were filled with fresh autogenous cancellous bone chips."

2210
Roche, J. RECHERCHES BIOCHIMIQUES SUR LES RÉACTIONS GENERALES DU SQUELETTE APRÈS FRACTURE D'UN OS ET UNITÉ PHYSIOLOGIQUE DU SYSTÈME OSSEUX. J. chir., Par., 1939, 53: 737-745.

2211
Roche, J. and Mourgue, M. RECHERCHES SUR L'OSSIFICATION. VIII. TENEUR EN PHOSPHORE ET EN CALCIUM DES CALS DE FRACTURE ET BIOCHIMIE DES REPARATIONS OSSEUSES. Tr. Soc. chim. biol., 1941, 23: 1149-1155. Abstracted in: Nutrit. Abstr., Aberdeen, 1946-47, 16: No. 772

2212
Rogal', I. G. K VOPROSU O VOZMOZHNOSTI REGENERATSII KONECHNOSTEI U KRYS. [POSSIBILITY OF THE REGENERATION OF THE EXTREMITIES IN RATS] Doklady Akad. nauk SSSR, 1951, 78: 161-164. 10 refs. Histological study of the amputation region of different limbs and bone fragments of limbs show a proliferation of epiderm, derm, connective tissue and cartilage. Development of cartilage ceases soon and is replaced by the bone tissue. A and D avitaminoses retard these processes.

2213
Ruf, F., Philipp, K. and Halse, T. ZUR PHYSIOLOGIE DER FRAKTURHEILUNG. I. MITTEILUNG: ÜBER DIE ANWENDUNG RADIOAKTIVER INDICATOREN BEI UNTERSUCHUNGEN UBER KNOCHENBRUCHHEILUNG. Arch. klin. Chir., 1950, 263: 417-424. 16 refs. Abstracted in: Excerpta med., Sect. 5, 1951, 4: No. 281.

2214
Ryvkind, A. Z. GISTOFIZIOLOGIIA KOSTNOI TKANI I ZAZHIVLENIE KOSTNYKH PERELOMOV. [HISTOPHYSIOLOGY OF OSSEOUS TISSUE AND HEALING OF FRACTURES] Khirurgia, Moskva, 1939, No. 9, 42-50. 14 refs.

2215
Servelle, A. DE L'OSTÉOGÉNÈSE AU NIVEAU DES FOYERS DE FRACTURE. Presse méd., 1942, 50: 568-570.

2216
Shands, A. R., Jr. STUDIES IN BONE FORMATION: THE EFFECT OF THE LOCAL PRESENCE OF CALCIUM SALTS ON OSTEOGENESIS. J. Bone Surg., 1937, 19: 1065-1076. 18 refs.

2217
Simon, R. BIOLOGIE DE L'OS FRACTURÉ. Rev. méd. est, 1934, 62: 325-343.

2218
Sissons, H. A. and Hadfield, G. J. THE INFLUENCE OF CORTISONE ON THE REPAIR OF EXPERIMENTAL FRACTURES IN THE RABBIT. Brit. J. Surg., 1951, 39: 172-178. 9 refs. Abstracted in: Excerpta med., Sect. 5, 1952, 5: No. 4043; Biol. Abstr., Balt., 1952, 26: No. 15272.

2219
Sperling, L., Armstrong, W. D. and Litow, S. THE INFLUENCE OF SODIUM-BETA-GLYCEROL-PHOSPHATE UPON THE HEALING OF EXPERIMENTAL FRACTURES. J. Bone Surg., 1942, 24: 781-784. 5 refs.

2220
Straus, R., Horwitz, M., Levinthal, D. H., Cohen, A. L. and Runjavac, M. STUDIES ON ANTIRETICULAR CYTOTOXIC SERUM. III. EFFECT OF ACS ON THE HEALING OF EXPERIMENTALLY PRODUCED FRACTURES IN RABBITS. J. Immunol., Balt., 1946, 54: 163-177. 6 refs.

2221
Studitskii, A. N. OSNOVY BIOLOGICHESKOI TEORII REGENERATSII. [THE PRINCIPLES OF BIOLOGICAL THEORY OF REGENERATION] Izv. Akad. nauk SSSR, ser. biol., 1952, No. 6, 6-36. 23 refs.

2222
Swenson, O. BIOCHEMICAL CHANGES IN THE FRACTURE HEMATOMA. J. Bone Surg., 1946, 28: 288-293. 9 refs. Abstracted in: Biol. Abstr., Balt., 1948, 22: No. 8872.

2223
Swenson, O. and Claff, C. L. CHANGES IN THE HYDROGEN ION CONCENTRATION OF HEALING FRACTURES. Proc. Soc. Exp. Biol., N. Y., 1946, 61: 151-154. 9 refs. Abstracted in: Biol. Abstr., Balt., 1946, 20: No. 11992;

2224
Tangari, C. L'INFLUENZA DEL SIERO DI FRATTURATI SULLA EVOLUZIONE DEL CALLO OSSEO NELLE FRATTURE SPERIMENTALI. Arch. Ist. biochim. ital., 1941, 13: 141-158. 8 refs.

2225
Teucq, E. RECONSTITUTION D'UN CARTILAGE DE CROISSANCE APRÈS AMPUTATION. Arch. biol., Par., 1948, 59: 1-6. 8 refs. Abstracted in: Biol. Abstr., Balt., 1949, 23: No. 7418.

2226
Timpe, O. UNTERSUCHUNGEN ÜBER DIE PHYSIOLOGIE DER FRAKTURHEILUNG. I. MITTEILUNG. FRAKTURHEILUNG UND MINERALSTOFFWECHSEL. Deut. Zschr. Chir., 1932, 237: 31-62. Approx. 65 refs.

2227
*Trivellini, A. and Corbella, A. CONTRIBUTO ALLO STUDIO DELLA RIGENERAZIONE OSSEA. Arch. ital. chir., 1943, 64: 1-44.

2228
Urist, M. R. CALCIFICATION AND OSSIFICATION IN HEALING FRACTURES. Tr. Conf. Metab. Aspects Convalesc., 1946, 14.meet., 29-74. 21 refs.

2229
Urist, M. R. CALCIFICATION AND OSSIFICATION. III. THE ROLE OF LOCAL TRANSFER OF BONE SALT IN THE CALCIFICATION OF THE FRACTURE CALLUS. J. Bone Surg., 1942, 24: 47-67. 40 refs.

2230
Urist, M. R. and Johnson, R. W. CALCIFICATION AND OSSIFICATION. IV. THE HEALING OF FRACTURES IN MAN UNDER CLINICAL CONDITIONS. J. Bone Surg., 1943, 25: 375-426. pl. 108 refs. This report is based upon examination of a large series of clinical fractures by microtechnical methods. It includes: "1. The concept of the organization of the callus; 2. Precise localization of the calcification in the histological and roentgenographic pictures of the callus; 3. Description of the process of removal of displaced fragments of injured parts and the significance of interposition of the tissues at the fracture site; 4. An analysis of the dynamics of union."

2231
Urist, M. R. and McLean, F. C. BONE REPAIR IN RATS WITH MULTIPLE FRACTURES. Am. J. Surg., 1950, 80: 685-695; passim. 25 refs. Abstracted in: Excerpta med., Sect. 5, 1952, 5: No. 3695.

2232
Voronin, G. N. O RAZVITII TELETS FATER-PACHINI PRI REGENERATSII KOSTNOI TKANI. [DEVELOPMENT OF PACINIAN CORPUSCLES IN REGENERATION OF BONE TISSUE] Doklady Akad. nauk SSSR, 1951, 76: 885-887. 8 refs.

2233
Voronin, G. N. REGENERATSIIA KOSTNOI TKANI U BELYKH MYSHEI I KRYS PRI PERELOMAKH. [REGENERATION OF BONE TISSUE IN WHITE MICE AND RATS IN FRACTURES] Doklady Akad. nauk SSSR, 1950, 73: 171-173. 9 refs.

2234
Wagoner, G. REPAIR OF INDUCED BONE DEFECTS; CELLULAR CHANGES WHICH TAKE PLACE WITHIN THE FIRST 48 HOURS. Arch. Surg., 1937, 34: 291-309. 1 ref.

2235
Wermel, J. UNTERSUCHUNGEN ÜBER DIE KINETOGENESE UND IHRE BEDEUTUNG IN DER ONTO- UND PHYLOGENETISCHEN ENTWICKLUNG. (EXPERIMENTE UND VERGLEICHUNGEN AN WIRBELTIER-EXTREMITATEN.) V. MITTEILUNG: REGENERATION DER KNOCHEN UND GELENKE, SOWIE NEUBILDUNG DER LETZTEREN. Gegenbaurs morph. Jahrb., 1935, 75: 445-451. 9 refs.

See:

55	56	276	406	437
471	490	493	494	504
506	510	511	518	520
524	526	536	543	546
557	837	906	923	928
994	1029	1132	1172	1189
1196	1201	1206	1208	1212
1237	1243	1246	1320	1327
1332	1335	1336	1343	1345
1347	1459	1461	1465	1550
1551	1554	1732	1763	1769
1776	1811	1881	1882	1903
1912	1913	1959	1974	1978
2033	2037	2040	2070	2098
2103	2104	2106	2112	2266
2296	2299	2301	2302	2403
2421	2422	2430	2549	2550
2603	2707	2718	2719	2720
2727	2768	2776	2777	2780
2868	2966			

REGENERATION AND REPAIR - ENZYME RELATIONSHIPS

see ENZYME RELATIONSHIPS - IN REGENERATION AND REPAIR; ENZYME RELATIONSHIPS - PHOSPHATASE IN REGENERATION AND REPAIR

RESORPTION AND RECONSTRUCTION

see also HORMONAL INFLUENCE - PARATHYROID, and - SEX HORMONES, FEMALE

2236
Albright, F. THE PROCESS OF BONE RESORPTION. Tr. Conf. Metab. Aspects Convalesc., 1946, 13.meet., 24-29. 1 ref.

2237
Amprino, R. A CONTRIBUTION TO THE FUNCTIONAL MEANING OF THE SUBSTITUTION OF PRIMARY BY SECONDARY BONE TISSUE. Acta anat., Basel, 1948, 5: 291-300. 14 refs. Abstracted in: Biol. Abstr., Balt., 1949, 23: No. 18850; Excerpta med., Sect. 1, 1949, 3: No. 777. Secondary ossification of the tendons of the legs of fowl seems to refute in part Gebhardt's hypothesis that the changing structure of bone, dependent upon mechanical stimuli, progressively increases mechanical resistance. The author considers more plausible his own theory, suggested in earlier papers, that the structural changes in the bone matrix depend largely on the need for continued mobilisation of the mineral salts temporarily stored in the calcified tissues.

2238
Amprino, R. LA DISTRIBUZIONE ED IL RINNOVAMENTO DEI MINERALI DELLE OSSA STUDIATI IN RAPPORTO AI PROCESSI DI RICOSTRUZIONE STRUTTURALE. Boll. Soc. ital. biol. sper., 1951, 27: 1713-1716. Abstracted in: Excerpta med., Sect. 1, 1953, 7: No. 1694. Autoradiographic studies were made of ground sections of whole bone treated with solutions of radiocalcium and radiophosphorus. The uptake of the minerals varied in the different bone tissues and was regulated by the chemico-physical composition of the ground substance. Differences in the composition of the ground substance was also considered partly responsible for differences in mineral fixation at various ages. Structural bone changes were regarded as the main mechanism of mineral liberation and fixation. Liberation was always carried on by the gradual resorption of calcified substance by the osteoclasts but fixation went through 2 processes: 1) immediate calcification of the organic matrix at the moment it was deposited, and 2) gradual and slower secondary calcification of new bone material.

2239
Amprino, R. INFLUENZA DEL RIMANEGGIAMENTO SULLA DISTRIBUZIONE DEI SALI DI CALCIO NELL'OSSO. Monit. zool. ital., 1951, 60: Suppl., 89-95. Studies of mineral deposition, during bone construction and reconstruction, in internal sections of the diaphysis of the long bones of individuals of different ages and species, were made by x-ray absorption and diffraction methods. Tracer studies were also made on dog bones, in vitro and in vivo, with radiocalcium and radiophosphorus. The general conclusions drawn were that mineral salts are deposited in the skeleton not only upon neoformation of fundamental substance but also, over a long period of time, through the further fixation of new mineral atoms to the already calcified fundamental substance.

2240
Amprino, R. RAPPORTI FRA PROCESSI DI RICOSTRUZIONE E DISTRIBUZIONE DEI MINERALI NELLE OSSA. I. RICERCHE ESEGUITE COL METODO DI STUDIO DELL'ASSORBIMENTO DEI RAGGI ROENTGEN. Zschr. Zellforsch., 1952, 37: 144-183. 68 refs. Abstracted in: Excerpta med., Sect. 1, 1953, 7: No. 1696. A microphotographic study was made of sections of the long bones of numerous animals (including amphibians, birds and man) and the calcium content of the compact substance analyzed. In all species, bone renewal processes caused significant changes in mineral distribution. In old bone the calcium content was unchanged and the mineral concentration unaffected by the relative proportion of osteomucoid and collagen. In new bone the calcium content was relatively low but increased progressively until it equalled that of the old bone. This calcification was more rapid near the vascular canals. Differences in the quality and rapidity of bone renewal and calcification were marked at different ages in the same species and at the same age in different species.

2241
Amprino, R. RAPPORTI FRA PROCESSI DI RICOSTRUZIONE E DISTRIBUZIONE DEI MINERALI NELLA OSSA. II. RICERCHE CON METODO AUTORADIOGRAFICO. Zschr. Zellforsch., 1952, 37: 241-273. 44 refs. Abstracted in: Excerpta med., Sect. 1, 1953, 7: 1133. Radiocalcium and radiophosphorus tracer studies were made of ground sections of the long bones of various animals, including amphibians, birds and man. The uptake of minerals was greater in new than old bone tissues and was regulated largely by the relative proportion of collagen and osteomucoid. Variations in quantity of minerals deposited depended not on the relation of tissue to osseous blood vessels, but on the minute structure and chemical composition of the basic bone substance. Elemental physico-chemical processes, rather than vital cell and enzyme activity, were responsible for mineral fixation. The marked differences in the fixation capacity of bone in different species were dependent on the minute structural differences of bone tissue and on quantitative differences in the processes of structural reconstruction

2242
Amprino, R. RISULTATI DI UN DECENNIO DI RICERCHE SUL SIGNIFICATO FUNZIONALE DEL RIMANEGGIAMENTO DELL'OSSO. Monit. zool. ital., 1947, 56: Suppl., 142-152. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 8316; Excerpta med., Sect. 1, 1950, 4: No. 1429. Histological examination of the bones of a large number of persons indicated that the constant changes in bone structure at every age are due, not only to mechanical stresses of different intensities exerted upon bone as a supporting structure but also and in greater degree to the constant mineral demands of the body made upon bone as a mineral reservoir. The article contains a review of other pertinent theories.

2243
Austoni, B. and Coggi, G. CONSIDERAZIONI SUL RICAMBIO MINERALE IN UN CASO DI DERIVAZIONE TOTALE ESTERNA DELLA BILE. Arch. ital. chir., 1934, 37: 464-472. Following the production of an external biliary fistula in a case of occlusion of the common bile duct by calculus, there was decalcification of the bones, decrease of blood calcium and phosphorus, lowering of the alkaline reserve and increased activity of the plasma phosphatase.

2244
Barnicot, N. A. STUDIES ON THE FACTORS INVOLVED IN BONE ABSORPTION. I. THE EFFECT OF SUBCUTANEOUS TRANSPLANTATION OF BONES OF THE GREY-LETHAL HOUSE MOUSE INTO NORMAL HOSTS AND OF NORMAL BONES INTO GREY-LETHAL HOSTS. Am. J. Anat., 1941, 68: 497-531. 2 pl. 15 refs. Abstracted in: Biol. Abstr., Balt., 1941, 15: No. 17837.

2245
Bloom, W. RESORPTION OF BONE. Tr. Conf. Metab. Interrelat., 1951, 3.Conf., 11-24. Conference discussion: p. 15-24. 7 refs.

2246
Brechner, J. and Armstrong, W. D. RELATION OF GASTRIC ACIDITY TO ALVEOLAR BONE RESORPTION. Proc. Soc. Exp. Biol., N. Y., 1941, 48: 98-100. 5 refs. Abstracted in: Chem. Abstr., 1942, 36: 553^{9}.

2247
Charles, S. W. THE CONTROL OF ACCRETION AND ABSORPTION IN MEMBRANE BONES. J. Anat., Lond., 1946, 80: 220-221.

2248
Crétin, A. CONTRIBUTION HISTOCHIMIQUE À L'ÉTUDE DE LA CONSTRUCTION ET DE LA DESTRUCTION OSSEUSE. Presse méd., 1951, 59: 1240-1242.

2249
Gosulow, H. ÜBER RESORPTIONS- UND NEUBILDUNGSPROZESSE IM KNOCHENGEWEBE (AUF GRUND MIKROSKOPISCHER UNTERSUCHUNGEN ENTZÜNDETER WARZENFORTSÄTZE. Acta otolar., Stockh., 1935, 22: 243-269.

2250
Häggqvist, G., Wilton, A. and Orell, S. OM BENNYBILDNING OCH BENNEDBRYTNING. [NEW BONE FORMATION AND BONE DEGENERATION] Nord. med., 1944, 21: 477-487.

2251
*Heller, M. GROUND SUBSTANCE, BASE SALTS AND CELLULAR ACTIVITY IN BONE FORMATION AND DESTRUCTION. Chicago, 1951. (Thesis-Ph.D-Univ.)

2252
Heller-Steinberg, M. GROUND SUBSTANCE, BONE SALTS, AND CELLULAR ACTIVITY IN BONE FORMATION AND DESTRUCTION. Am. J. Anat., 1951, 89: 347-379. Abstracted in: Biol. Abstr., Balt., 1952, 26: No. 31237; Excerpta med.,

2253
Hertz, J. ON THE CONSTRUCTIVE AND DESTRUCTIVE PROCESSES IN THE BONES AND TEETH OF NORMAL AND SCORBUTIC ORGANISMS. Acta path. microb. scand., 1936, 13: 329-349. 14 pl. 37 refs. Abstracted in: Biol. Abstr., Balt., 1937, 11: No. 13865; Nutrit. Abstr., Aberdeen, 1937-38, 7: No. 367.

2254
Jaffe, H. L. THE RESORPTION OF BONE. A CONSIDERATION OF THE UNDERLYING PROCESSES PARTICULARLY IN PATHOLOGIC CONDITIONS. Arch. Surg., 1930, 20: 355-385. 37 refs. Abstracted in: Biol. Abstr., Balt., 1932, 6: No. 4117. Vascular resorption and osteoclastic resorption are surveyed and the literature reviewed.

2255
*Jung, A. LES MECANISMES DE LA RESORPTION OSSEUSE. Rev. chir., Par., 1937, 75: 473-511.

2256
Leblond, C. P., Wilkinson, G. [W.] and Robichon, J. LA FORMATION DES OS CHEZ LE RAT ÉTUDIÉE À L'AIDE DU RADIOPHOSPHORE. Ann. ACFAS, Montreal, 1950, 16: 133. The diaphysis is described as a cylinder with two sub-epiphyseal regions, or "bulbs." Autoradiographic studies of the deposition of radiophosphorus in the long bones of rats indicated that new bone is formed on the external surfaces of the cylinder and also on the interior surface of the bulbs and that while moderate resorption occurs from the internal cylindrical surface, there is intense resorption of the external surface of the bulbs.

2257
McLean, F. C. BIOCHEMICAL AND BIOMECHANICAL ASPECTS OF THE RESORPTION OF BONE. J. Periodont., 1954, 25: 176-182. 14 refs. Discussion: p. 182. A survey of present knowledge.

2258
Marek, J., Wellmann, O. and Urbányi, L. ÜBER DIE KNOCHENSALZLÖSENDE WIRKUNG DES BLUTSERUMS GESUNDER UND RHACHITISCHER FERKEL. Biochem. Zschr., 1932, 252: 131-144. 6 refs. Abstracted in: Chem. Abstr., 1932, 26: 5621.

2259
Meister, W. CHANGES IN HISTOLOGICAL STRUCTURE OF LONG BONES OF BIRDS DURING THE MOULT. Anat. Rec., 1951, 111: 1-21. pl. 7 refs. Abstracted in: Brit. Abstr., Sect. AIII, 1953, p. 410; Biol. Abstr., Balt., 1952, 26: No. 28348.

2260
Mouriquand, G., Dauvergne, M. and Edel, V. OSTÉOPATHIES PAR CARENCE. DÉCALCIFICATION "IRRÉVERSIBLE" DU COL FÉMORAL DANS L'AVITAMINOSE C CHRONIQUE. Presse méd., 1940, 48: 268-269. Abstracted in: Chem. Abstr., 1940, 34: 5501^{9}.

2261
Muhlethaler, J. P. LA RÉSORPTION DE L'OS MORT ÉTUDIÉE PAR LA MÉTHODE DE CULTURE DES TISSUS. Zschr. Zellforsch., 1953, 38: 69-77. 28 refs. "Histiocytes are, in tissue culture, the sole elements responsible for the resorption of pieces of dead bone. They generally form a network of fixed cells, anastomosed with one another, but in the presence of polynuclear cells, they are transformed, at least in part, into mobile mononuclear macrophages. Under experimental conditions, giant multinuclear cells have never been observed."

RESORPTION AND RECONSTRUCTION (Continued)

2262
Pecco, R. RISERVA ALCALINA, CALCIO E FOSFORO NEL SANGUE DI ANIMALI CON COMPLETA DERIVAZIONE DELLA BILE. Arch. ital. chir., 1931, 28: 163-174. 27 refs. Abstracted in: Biol. Abstr., Balt., 1932, 6: No. 9727. "External cholecystostomy was performed on 4 dogs; 3 survived for 100-178 days and the 4th was killed 186 days after operation. X-ray examination showed an osseous decalcification. Blood examination showed a progressive acidosis, diminution of P and a normal Ca level, agreeing with the findings in human and experimental rachitis." - Biol. Abstr.

2263
Perrottet, E. and Duckert, R. ASPECT CHIMIQUE DE LA DÉMINÉRALISATION DE L'OS. TRANSFORMATION DE GREFFES OSSEUSES EN TISSU MUSCULAIRE. Experientia, Basel, 1951, 7: 419-420. 4 refs. In rabbits, autografts of bone from the skull were implanted into muscles. Calcium and phosphorus determinations showed initial necrosis and resorption. Demineralization of the grafts occurred in most cases. A marked difference between the chemical composition of compact and spongy bone was noted in the rabbits.

2264
Reitan, K. APPOSISJONS- OG RESORPSJONSPROSESSENES FORLØP VED FORSKJELLIGE TYPER BENVEV. Norske tannlaegeforen. tid., 1953, 63: 161-173. 6 refs.

2265
Ruth, E. B. BONE STUDIES. II. AN EXPERIMENTAL STUDY OF THE HAVERSIAN-TYPE VASCULAR CHANNELS. Am. J. Anat., 1953, 93: 429-455. pl. 22 refs. Abstracted in: Biol. Abstr., Balt., 1954, 28: No. 15978. The literature on development and significance of the Haversian system, comparative and human, is critically reviewed and a new interpretation is presented, based upon the concept "that Haversian canals develop as a necessary result of the process of repair of circumscribed areas of resorption within the compacta, or within the more robust trabeculae of osseous tissue." The femora of young adult female albino rats were used for the experimental observations and a series of human and other mammalian femora for the comparative studies.

2266
Rutishauser, E. and Kind, H. PROBLEME DER OSTEOLYSE. Schweiz. med. Wschr., 1950, 80: 182-183. Abstracted in: Excerpta med., Sect. 5, 1951, 4: No. 2637.

2267
Tamura, K. ÜBER DIE HALISTERESE DES KNOCHENS BEI DER ACIDOSE. Tr. Jap. Path. Soc., 1930, 20: 42. Abstracted in: Biol. Abstr., Balt., 1933, 7: No. 18568.

2268
Zawisch, C. DIE BIOLOGIE DER AUF- UND UMBAUPROZESSE DES KNOCHENS IM LICHTE NEUERER HISTOLOGISCHER UND EXPERIMENTELLER ERFAHRUNGEN. Wien. klin. Wschr., 1934, 47: 801-804.

See:

196	205	474	476	481
514	529	535	539	985
1355	1388	1557	1562	1603
1617	1623	1663	1877	2133
2239	2712	2741		

RICKETS, EXPERIMENTAL (including manganese, beryllium, strontium and alkali rickets)

see also VITAMIN INFLUENCE - VITAMIN D

2269
Blumberg, H., Shelling, D. H. and Jackson, D. A. THE PRODUCTION OF MANGANESE RICKETS IN RATS. J. Nutrit., 1938, 16: 317-324. 13 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1938-39, 8: No. 5001.

2270
Gorlin, R. J. BERYLLIUM RICKETS: ITS EFFECT ON THE TEETH, THE MANDIBULAR JOINT, AND THE BONES OF THE SKULL OF THE ALBINO RAT. Oral Surg., 1951, 4: 177-197. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 23956. A histologic study.

2271
Jacobson, S. A. BONE LESIONS IN RATS PRODUCED BY THE SUBSTITUTION OF BERYLLIUM FOR CALCIUM IN THE DIET. Arch. Path., Chic., 1933, 15: 18-26. 1 ref. Abstracted in: Chem. Abstr., 1933, 27: 2714. "A calcium-free Steenbock diet with the addition of cod liver oil and beryllium carbonate produces a disease anatomically indistinguishable from rickets."

2272
Kay, H. D. BERYLLIUM RICKETS. II. THE PREVENTION AND CURE OF BERYLLIUM RICKETS. Biochem. J., Lond., 1934, 28: 1222-1227. 6 refs. Abstracted in: Chem. Abstr., 1935, 29: 1142[2].

2273
Lecoq, R. RACHITISME EXPÉRIMENTAL OBTENU PAR SIMPLE ALCALOSE ET SANS DÉSÉQUILIBRE PHOSPHO-CALCIQUE. C. rend. Acad. sc., 1943, 216: 503-505. 3 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1945-46, 15: No. 574.

2274
Lecoq, R. LE RÔLE DE L'ALCALOSE DANS LA PRODUCTION DU RACHITISME EXPÉRIMENTAL. C. rend. Acad. sc., 1941, 212: 938-940. 5 refs.

2275
Lecoq, R. and Villette, H. PHOSPHORE ET RACHITISME. III. ACTION INHIBITRICE EXERCÉE SUR LA CALCIFICATION OSSEUSE DES RATS PRÉALABLEMENT RACHITISÉS PAR QUELQUES MÉTAUX AJOUTÉS À LA RATION SOUS FORME DE CARBONATES OU DE PHOSPHATES. J. pharm. chim., Par., 1934, 19: 201-206. 11 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1934-35, 4: No. 501.

2276
Lecoq, R., Chauchard, P. and Mazoué, H. LE RACHITISME DYSTROPHIQUE, OBTENU PAR ADDITION DE CARBONATE DE STRONTIUM AUX RÉGIMES RACHITIGÈNES CLASSIQUES, EST-IL, COMME ON LE CROIT, À LA FOIS UVIO ET VITAMINO-RÉSISTANT? C. rend. Soc. biol., 1943, 137: 444-445. Abstracted in: Nutrit. Abstr., Aberdeen, 1945-46, 15: No. 1239.

2277
Mourgue, M. RECHERCHES BIOCHIMIQUES SUR L'OSTÉOLYSE AU COURS DU "RACHITISME AU STRONTIUM". J. physiol. path. gén., 1939-1940, 37: 1358-1361. 14 refs. Abstracted in: Biol. Abstr., Balt., 1947, 21: No. 3431; Chem. Abstr., 1950, 44: 41376.

2278
Mouriquand, G., Leulier, A. and Coeur, A. RECHERCHES SUR LA PATHOGÉNIE DU RACHITISME. (MODIFICATIONS DU CYCLE DU CHOLESTÉROL, DU POTASSIUM, DE LA MASSE SPLÉNIQUE ET ROLE DES ANTIFIXATEURS ET FIXATEURS DU CALCIUM DANS LE RACHITISME EXPÉRIMENTAL.) Ann. méd., Par., 1938, 43: 165-186. 1 ref.

2279
Mouriquand, G., Leulier, A. and Weill, [L.]. L'AGE ET LES ANTIFIXATEURS DU CALCIUM. C. rend. Acad. sc., 1932, 194: 1029-1031. Abstracted in: Chem. Abstr., 1932, 26: 3285; Nutrit. Abstr., Aberdeen, 1932-33, 2: No. 446. "Experiments on rats show that young and pre-adult animals are markedly sensitive to the action of strontium carbonate in inhibiting the fixation of calcium, but that adult rats no longer show the sensitiveness on the diet used. Rickets developed in the young and pre-adult, but not in the adult animals." - Nutrit. Abstr.

RICKETS, EXPERIMENTAL (Continued)

2280
Mouriquand, G., Leulier, A. and Weill, L. LE RACHITISME HYPOTROPHIQUE EXPÉRIMENTAL. C. rend. Acad. sc., 1932, 194: 1201-1202. Abstracted in: Nutrit. Abstr., Aberdeen, 1932-33, 2: No. 1306.

2281
Mouriquand, G., Leulier, A., Bernheim, M. and Weill, L. RECHERCHES SUR LES ANTIFIXATEURS DU CALCIUM. Presse méd., 1931, 39: 769-771. Abstracted in: Biol. Abstr., Balt., 1932, 6: No. 18902.

2282
Niederwieser, V. ÜBER KNORPELSTÖRUNG BEI EXPERIMENTELLER ACIDOSE. Zschr. Kinderh., 1933, 54: 717-724. 6 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1933-34, 3: No. 2189; Biol. Abstr., Balt., 1936, 10: No. 21255.

2283
Roche, A. and Mourgue, M. RACHITISME AU STRONTIUM ET DÉMINÉRALISATION DES OS LONGS CHEZ LES ANIMAUX ADULTES. C. rend. Soc. biol., 1939, 130: 1136-1138. 4 refs. Abstracted in: Biol. Abstr., Balt., 1939, 11: No. 13272; Chem. Abstr., 1939, 33: 5452[9].

2284
Sobel, A. E., Cohen, J. and Kramer, B. THE NATURE OF THE INJURY TO THE CALCIFYING MECHANISM IN RICKETS DUE TO STRONTIUM. Biochem. J., Lond., 1935, 29: 2640-2645. pl. 11 refs.

2285
Sobel, A. E., Goldfarb, A. R. and Kramer, B. STUDIES OF INCURABLE RICKETS. I. RESPECTIVE ROLE OF THE LOCAL FACTOR AND VITAMIN D IN HEALING. Proc. Soc. Exp. Biol., N. Y., 1934, 31: 869-870.

2286
Sobel, A. E., Goldfarb, A. R. and Kramer, B. STUDIES OF INCURABLE RICKETS. II. ROLE OF THE "LOCAL FACTOR" AND OF VIOSTEROL IN THE PATHOGENESIS OF RICKETS DUE TO BERYLLIUM. J. Biol. Chem., 1935, 108: 393-401. 10 refs.

See:

58 828 1195 2020 2854 2883

SALIVARY GLANDS - INFLUENCE

2287
Ban, T., Takizawa, N., Nagao, N. and Kusano, N. ÜBER DIE BEZIEHUNGEN ZWISCHEN DER INNEREN SEKRETION DER SPEICHELDRÜSE UND DER ENTWICKLUNG UND DEM WACHSTUM DES KNOCHENS. I. MITTEILUNG. Tr. Soc. path. jap., 1945, 25: 510-511.

2288
Ichikawa, T., Kondo, S. and Arai, M. EINFLÜSSE DER SPEICHELDRÜSENEXSTIRPATION AUF DAS WACHSTUM DER HARTGEWEBE. (II. MITTEILUNG). Tr. Soc. path. jap., 1938, 28: 456-460. "Extirpation of the main salivary glands of young rats caused changes in the different endocrine glands and changes in the epiphyseal line of the long bones."

2289
Miyasaki, Y., Kondo, S. and Ichikawa, T. EINFLÜSSE DER SPEICHELDRÜSENEXSTIRPATION AUF DAS WACHSTUM DER HARTGEWEBE. Tr. Soc. path. jap., 1937, 27: 551-556.

2290
Takizawa, N. and Kusano, N. ÜBER DIE BEZIEHUNGEN ZWISCHEN DER INNEREN SEKRETION DER SPEICHELDRÜSE UND DER ENTWICKLUNG UND DEM WACHSTUM DES KNOCHENS. III. MITTEILUNG. Tr. Soc. path. jap., 1937, 27: 549-551.

2291
Takizawa, N., Kusano, N., Hirayama, J., Isu, Z., Matumoto, T. and Endo, K. [ÜBER DIE BEZIEHUNGEN ZWISCHEN DER INNEREN SEKRETION DER SPEICHELDRÜSE DER ENTWICKLUNG UND DEM WACHSTUM DES KNOCHENS. (IV. MITTEILUNG).] Tr. Soc. path. jap., 1938, 28: 454-456.

See:

1487

SKELETAL RELATIONSHIPS

2292
Amprino, R. and Sisto, L. ANALOGIES ET DIFFÉRENCES DE STRUCTURE DANS LES DIFFÉRENTES RÉGIONS D'UN MÊME OS. Acta anat., Basel, 1946, 2: 202-214. 5 refs. This study of the relationship between external shape and internal structure of the diaphysis of the human femur at various ages indicates that differences in the minute structure are not directly related to mechanical stress.

2293
*Bauer, H. O. K. VOLUMEN UND LÄNGE DER LANGEN GLIEDMASSENKNOCHEN WÄHREND DES FETALEN WACHSTUM. Anthrop. Anz., 1940, 17: 77-102. Abstracted in: Biol. Abstr., Balt., 1941, 15: No. 14912.

2294
Dallemagne, M. J. INFLUENCE D'UNE RÉSECTION OSSEUSE SUR LES ÉLÉMENTS MINÉRAUX DU SQUELETTE DU LAPIN ADULTE. RÉSECTIONS SOUS-PÉRIOSTÉES EN COURS DE RÉPARATION. Acta biol. belg., 1941, 1: 498-501. 2 refs. A subperiosteal resection was made in the radial or ulnar diaphysis of adult rabbits and the separated periosteum placed in the cavity. Later mineral determinations of various bones indicated that the skeletal mineral mobilization provoked by the lesion did not involve the entire skeleton as suggested by Roche but was confined to the homologous and neighbouring bones. These phenomena were found to be constant, on one condition: the implanted section of periosteum must be capable of new bone formation.

2295
Enselme, J. and Trintignac, P. ACTION SUR L'OSSIFICATION GÉNÉRALE DES TRANSPLANTS OSSEUX. Lyon chir., 1939, 36: 434-436.

2296
Mourgue, M. MODIFICATIONS DE LA COMPOSITION DES OS PLATS APRÈS FRACTURE D'UN OS LONG. C. rend. Soc. biol.,1939, 131: 382-383. Abstracted in: Biol. Abstr., Balt., 1940, 14: No. 10325; Chem. Abstr., 1939, 33: 6927[3].

2297
Nagura, S. SISI TYKŌTU ZYŪRYO-TEKI HEREI NI TUITÉ. [INTERRELATED WEIGHT OF LONG BONES OF EXTREMITIES] Mitt. Med. Ges. Tokyo, 1932, 46: 695-720.

2298
Perrottet, E. ÉTUDE DES VARIATIONS DE TENEURS EN CALCIUM ET PHOSPHORE DANS DES OS NÉCROSÉS EXPÉRIMENTALEMENT PAR LA CHALEUR. Arch. sc., Genève, 1951, 4: 255-259. 3 refs. Abstracted in: Biol. Abstr., Balt., 1952, 26: No. 31242. In rabbits determinations of the ash, calcium and phosphorus content of metatarsals rendered necrotic by heat showed an increased percentage of the minerals. Homologous bones showed a "sympathetic" demineralization.

SKELETAL RELATIONSHIPS (Continued)

2299
Pesce, G. and Rulla, L. COMPORTAMENTO DEL CALLO OSSEO IN ANIMALI SOTTOPOSTI A FRATTURE RIPETUTE. Ann. ital. chir., 1951, 28: 647-660. 21 refs. In rabbits the left radius was fractured 20 days after fracture of the right. In the second fracture, the callus was larger and the processes of regeneration were more active. The literature is reviewed.

2300
Roche, J. and Filippi, A. LE SYSTÈME OSSEUX UNITÉ PHYSIOLOGIQUE. AUGMENTATION GÉNÉRALE DE L'ACTIVITÉ PHOSPHATASIQUE DU SQUELETTE APRÈS FRACTURE D'UN OS. C. rend. Soc. biol., 1938, 129: 322-326. 3 refs. Abstracted in: Biol. Abstr., Balt., 1939, 13: No. 5707.

2301
Roche, J. and Mourgue, M. RECHERCHES SUR L'OSSIFICATION. VI. MODIFICATIONS GÉNÉRALES DE LA COMPOSITION DES OS LONGS APRÈS FRACTURE EXPÉRIMENTALE D'UNE PIÈCE SQUELETTIQUE ET UNITÉ PHYSIOLOGIQUE DU SYSTÈME OSSEUX. Bull. Soc. chim. biol., Par., 1939, 21: 143-165. 8 refs. Abstracted in: Biol. Abstr., Balt., 1940, 14: No. 14774. "The chemical changes during repair were most intense about the injury but extended in lesser degree through the entire osseous system as was shown by the alterations in the uninjured homologue. There was first a demineralization which after about 25 days was followed by a gradual return to normal." - Biol. Abstr.

2302
Roche, J., Filippi, A. and Mourgue, M. SUR LES RÉACTIONS GÉNÉRALES DU SQUELETTE CONSÉCUTIVES À LA FRACTURE D'UN OS. C. rend. Acad. sc., 1938, 207: 254-257. 1 ref. Abstracted in: Chem. Abstr., 1939, 33: 5463[1].

See:

852 1104 1729 1811 2141
2148 2210 2806

STRUCTURE

2303
*Amprino, R. and Godina, G. RICERCHE COMPARATIVE SULLA STRUTTURA DELLE OSSA DEI VERTEBRATI. Atti Accad. naz. Lincei, Rendic., Class. sc. fis., ser. 8A, 1946, 1: 648-654. Abstracted in: Biol. Abstr., Balt., 1949, 23: No. 7412; Excerpta med., Sect. 1, 1948, 2: No. 305.

2304
*Amprino, R. and Godina, G. LA STRUTTURA DELLE OSSA NEI VERTEBRATI. RICERCHE COMPARATIVE NEGLI ANFIBI E NEGLI AMNIOTI. Commentat. Pontificia acad. sc., 1947, 11: 329-462. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 5238.

2305
Benninghoff, A. and Timmer, G. J. ÜBER DIE KOMPAKT-ARCHITEKTUR DER GROSSEN RÖHRENKNOCHEN. Klin. Wschr., 1948, 26: 126. Also in: Aerztl. Wschr., 1948, 3: 379-380. Abstracted in: Excerpta med., Sect. 1, 1949, 3: No. 503. The course of the lines of cleavage in compact bone is discussed.

2306
Bruno, G. and Ottonello, P. OSSERVAZIONI SULL'ARCHITETTURA DEL TESSUTO SPUGNOSO DELL'EPIFISI PROSSIMALE DEL FEMORE DELL'UOMO CON PARTICOLARE RIGUARDO AL COSI DETTO TRIANGOLO DI WARD ED ALLO SPERONE FEMORALE. Radiol. med., Milano, 1933, 20: 1201-1206. 12 refs.

2307
Crawford, G. N. C. THE EVOLUTION OF THE HAVERSIAN PATTERN IN BONE. J. Anat., Lond., 1940, 74: 284-299. 8 refs. Abstracted in: Biol. Abstr., Balt., 1940, 14: No. 16227.

2308
Crétin, A. and Mahoț, H. CONTRIBUTION À L'ÉTUDE DU TISSU ÉLASTIQUE DE L'OS. C. rend. Ass. anat., (1947) 1948, 34: 139-141.

2309
*Deák, P., Tarján, R. and Sándi, E. A CSONT SZERKEZETI VÁLTOZÁSAINAK REGISZTRÁLÁSA RÖNTGENFOTOMETRIÁS VIZSGÁLATTAL. [DENSOGRAPHY OF CHANGES IN THE STRUCTURE OF THE BONES] Magy. radiol., 1953, 5: 97-101.

2310
Deggeler, C. BEITRAG ZUR KENNTNIS DER ARCHITEKTUR DES FETALEN SCHÄDELS. Zschr. Anat. Entw., 1942, 111: 470-489. 13 refs. Abstracted in: Biol. Abstr., Balt., 1948, 22: No. 24356.

2311
Fraipont, C. SUR LES CARACTÈRES MICROSCOPIQUES DIFFÉRENTIELS DES OS CHEZ LES PRIMATES. C. rend. Acad. sc., 1933, 196: 1925.

2312
*Hirsch, C. and Schajowicz, F. STUDIES ON STRUCTURAL CHANGES IN THE LUMBAR ANNULUS FIBROSUS. Acta orthop. scand., 1953, 22: 184-231. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 27655.

2313
Jentschura, G. ANORDNUNG DER BAUELEMENTE DES KNOCHENS IM SCHLIFF. 35p. Charlottenb., K. & R. Hoffmann, 1941. (Inaug.-Diss.-Berlin). 19 refs.

2314
Mátyás, J. and Szabó, M. DAS NÄHERE VERWANDTSCHAFTSVERHALTNIS ZWISCHEN DEM MENSCHEN UND DEN ANTHROPOIDEN AUF GRUND MIKROOSTEOLGISCHER UNTERSUCHUNGEN AUCH MIT RÜCKSICHT AUF DIE FEINERE KNOCHENSTRUKTUR DER CARNIVOREN UND UNGULATEN. Zschr. ges. Anat., 1. Abt., 1932, 97: 169-209. 17 pl. 4 refs.

2315
Mechanik, N. UNTERSUCHUNG DER KOMPAKTEN SCHICHT UND DER MARKHÖLE DER FIBULA DES MENSCHEN. Zschr. ges. Anat., 1. Abt., 1932, 97: 331-355. 14 refs.

2316
Muratori, G. SULLA ARCHITETTURA DELLA SPONGIOSA DELL'ESTREMITÀ PROSSIMALE DEL FEMORE UMANO NELLE ANOMALIE DELL'ANGOLO DI INCLINAZIONE DEL COLLO FEMORALE. Ann. Univ. Ferrara, n.s., Sect. 1, 1953, 1: No. 4, [37]-42. 7 refs.

2317
Nedbál, M. E. STRUKTURVERSCHIEDENHEITEN IN DEN DIAPHYSEN DER KARPALEN UND TARSALEN KNOCHEN BEI ZWEI FLUGTIEREN (PTEROPUS NEOHIBERNICUS PET. UND DER ARDEA CINEREA L.). Zschr. Anat. Entw., 1932, 97: 210-250. 23 pl. 4 refs.

2318
Ohkubo, K. STUDIES IN THE PROPORTION OF THE VASCULAR SPACE AND THE BONE TISSUE IN THE COMPACT SUBSTANCE OF THE HUMAN LONG BONE. Jap. J. M. Sc., 1934, 4: Anat. 411-415. 4 refs.

2319
Oliveira, H. de. NOTES SUR LA STRUCTURE DU TISSU OSSEUX. Fol. anat. Univ. conimbr., 1932, 7: No. 2, 1-5. 3 pl.

2320
Piedelièvre and Clavelin. MORPHOLOGIE OSSEUSE DE L'HUMÉRUS. ESSAI DE RECONSTITUTION DE L'OS TYPE. Acta med. leg. social., Brux., 1948, 1: 371-381. Long French and English summaries. Abstracted in: Excerpta med., Sect. 1, 1949, 3: No. 648. Theoretical reconstruction of the average human humerus based on mean measurements, with due regard for racial differences in muscle insertion.

2321
Ruth, E. B. BONE STUDIES.. I. FIBRILLAR STRUCTURE OF ADULT HUMAN BONE. Am. J. Anat., 1947, 80: 35-53. 3 pl. 12 refs. Abstracted in: Biol. Abstr., Balt., 1947, 21: No. 11783; Excerpta med., Sect. 9, 1948, 2: No. 4221.

2322
Ruth, E. B. OBSERVATIONS ON THE COMPARATIVE HISTOMORPHOLOGY OF THE FEMUR. Anat. Rec., 1948, 100: 708. Abstract of a paper presented at the American Association of Anatomists, April, 1948. "The purpose of this study is to emphasize the importance of understanding the normal histomorphology and histomorphogenesis of bones studied under experimental conditions, before attempting to interpret results of experimental procedures on bone." Histomorphology of the femurs of the turkey, chicken, cow, pig, dog, rabbit, guinea pig, rat and rhesus monkey is discussed.

2323
Ruth, E. B. and Haury, E. W. SOME OBSERVATIONS ON THE MATURATION OF THE HISTOMORPHOLOGY OF HUMAN BONE. Anat. Rec., 1947, 97: 404-405. An abstract.

2324
*Schmidt, W. J. DER FEINBAU DER ANORGANISCHEN GRUNDMASSE DES KNOCHENGEWEBES. Ber. Oberhess. Ges. Natur. Heilk. Naturwiss. Abt., 1933, 15: 219-247.

2325
Sinelnikov, N. A. O PROSTRANSTVENNOM RASPOLOZHENII O STEONOV V DIAFIZE BEDRA CHELOVEKA I DRUGIKH PRIMATOV. [SPACE DISTRIBUTION OF OSTEONES IN THE DIAPHYSIS OF THE FEMUR IN MAN AND PRIMATES] Antrop. J., Moskva, 1937, No. 3, 102-116. 11 refs. English summary. There is a certain regularity in the disposition of osteones in the microanatomical structure of the diaphysis of the femur in man and other primates. They are located in the thick of compacta at angles to the longitudinal axis of the diaphysis, with two demarcation lines on the anterior and posterior surfaces of the femur with which the angles of the osteone slopes are seen to change. Some differences occur between details of osteone disposition in the human and chimpanzee femur. These appear to be connected with differences in functions of the femur as an organ of locomotion in man and monkey.

2326
*Sosnovskaia, E. M. NEKOTORYE DANNYE OB ELASTICHESKIKH VOLOKNAKH V KOSTI. [SOME DATA ON THE ELASTIC FIBRES IN BONES] Arch. russ. anat., 1936, 15: No. 2, 64-72. German summary: p. 167-168. Abstracted in: Biol. Abstr., Balt., 1937, 11: No. 17147.

2327
Zimmermann, A. A CSONTOK MIKVOSZKÓPOS SZERKEZETÉRÖL. ÖSSZEFOGLALÓ ISMERTETÉS. [MICROSCOPIC STRUCTURE OF BONES] Allatorv. lap., 1938, 61: 5-6.

See:

233	506	870	1054	1057
1122	1566	1678	1730	1967
2046	2084	2085	2119	2259

2328
Amprino, R. AUTORADIOGRAPHIC ANALYSIS OF THE DISTRIBUTION OF LABELLED CA AND P IN BONES. Experientia, Basel, 1952, 8: 20-22. 28 refs. Abstracted in: Biol. Abstr., Balt., 1952, 26: No. 17193; Excerpta med., Sect. 2, 1952, 5: No. 4315. Studies of ground sections of fresh bone indicated that the uptake of calcium and of phosphorus was greater in new, not yet mineralized, bone than in old bone and greater in youth than in age. The mechanism of the calcification of compact bone is discussed.

2329
*Amprino, R. LA CROISSANCE ET LE REMANIEMENT DES OS ÉTUDIES PAR L'EMPLOI DU RADIOCALCIUM. C. rend. Ass. anat., 1953, No. 74, 493-498. Abstracted in: Bull. Anal. CNRS, 1953, 14: pt. 2, No. 127621. "The degree of calcification generally increases with age. This progressive calcification can be demonstrated by the use of calcium and phosphorus radioactive isotopes." - Bull. anal. CNRS.

2330
Amprino, R. FURTHER EXPERIMENTS ON THE FIXATION IN VITRO OF RADIOCALCIUM TO SECTIONS OF BONE. Experientia, Basel, 1952, 8: 380-382. 7 refs. Abstracted in: Chem. Abstr., 1953, 47: 3355h. Ground sections of bone were given various treatments and then placed in a weak solution of radioactive calcium chloride. Autoradiographic studies of the sections showed that only complete destruction of the organic matrix resulted in appreciable modification of radiocalcium distribution.

2331
Amprino, R. IL METODO DI STUDIO AUTOGRAFICO DI SEZIONI DI OSSA TRATTATE IN VITRO CON RADIOCALCIO. Chir. org. movim., 1953, 38: 139-153. 23 refs. An autoradiographic method of studying the in vitro uptake of radioactive calcium or phosphorus by recently formed bone is described in detail. The method is as useful in studying secondary as primary ossification. Several studies of normal and diseased bone are illustrated and discussed.

2332
Arnold, J. S. and Webster, S. S. HAVERSIAN SYSTEM GROWTH AND FORMATION IN RABBITS. Anat. Rec., 1953, 115: 276. An abstract. In the radioautographic study made on ground tibial bone sections of 3 month old rabbits given 1 mc Ca^{45} intravenously, and sacrificed at 1 to 24 hours later, growth areas were most marked over the innermost lamellas of some Haversian systems and over the edges of resorption cavities. In animals sacrificed 7 or 21 days after injections, growth occurred at varying positions from the central to the peripheral area. "The number of resorption cavities in a particular area of bone was proportional to the number of Haversian systems showing Ca^{45} concentration. The established theory that Haversian systems are formed by the filling of resorption cavities with concentric lamellas of bone is experimentally verified."

2333
Leblond, C. P., Wilkinson, G. W., Bélanger, L. F. and Robichon, J. RADIO-AUTOGRAPHIC VISUALIZATION OF BONE FORMATION IN THE RAT. Am. J. Anat., 1950, 86: 289-341. pl. 33 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1951-52, 21: No. 2330; Nuclear Sc. Abstr., 1951, 5: No. 3911. The deposition of bone phosphate in the tibia and humerus of newborn and adult rats was studied at various intervals after injection of radiophosphorus.

STRUCTURE - AUTORADIOGRAPHIC STUDIES
(Continued)

See:

24 672 1830 1833 1849
2238 2241 2256 2601 2685
2708

STRUCTURE - CRYSTAL

see CRYSTAL STRUCTURE AND SURFACE ACTIVITY

STRUCTURE - ELECTRONMICROSCOPIC STUDIES

2334
*Ascenzi, A. LA STRUTTURA DELL'OSSEO UMANO OSSERVATA AL MICROSCOPIO ELETTRONICO. Rendic. Ist. sup. san., Roma, 1949, 12: 893-902. Abstracted in: Excerpta med., Sect. 1, 1952, 6: No. 56.

2335
Barbour, E. P. A STUDY OF THE STRUCTURE OF FRESH AND FOSSIL HUMAN BONE BY MEANS OF THE ELECTRON MICROSCOPE. Am. J. Phys. Anthrop., 1950, 8: 315-329. pl. 9 refs. Abstracted in: Excerpta med., Sect. 1, 1951, 5: No. 593.

2336
Kellenberger, E. and Rouiller, C. DIE KNOCHENSTRUKTUR, UNTERSUCHT MIT DEM ELEKTRONENMIKROSKOP. Schweiz. Zschr. allg. Path., 1950, 13: 783-788. 10 refs. Abstracted in: Biol. Abstr., Balt., 1951, 26: No. 34063; Excerpta med., Sect. 5, 1951, 4: No. 2634.

2337
Robinson, R. A. ELECTRON MICROGRAPHY ON BONE. Tr. Conf. Metab. Interrelat., 1951, 3.Conf., 271-289. Conference discussion: p. 287-289. 12 refs.

2338
Robinson, R. A. AN ELECTRON-MICROSCOPIC STUDY OF THE CRYSTALLINE INORGANIC COMPONENT OF BONE AND ITS RELATIONSHIP TO THE ORGANIC MATRIX. J. Bone Surg., 1952, 34A: 389-435, 476. 127 refs. Abstracted in: Chem. Abstr., 1953, 47: 5974h. The components and structure of inorganic bone crystals and bone collagen were examined and their relation to each other and to the cement substance studied. Hydroxyapatite crystals of varying size and shape, the inorganic crystals of bone, were found to lie in the cement substance and not in the collagen fibers, which may serve as a nidus for crystal formation in the bone matrix. The cells of the bone matrix play an essential role in organic-inorganic relationships. The findings of this study were correlated with the data of other methods of investigation of bone crystals.

2339
Robinson, R. A. and Watson, M. L. COLLAGEN-CRYSTAL RELATIONSHIPS IN BONE AS SEEN IN THE ELECTRON MICROSCOPE. Anat. Rec., 1952, 114: 383-410. 8 pl. 19 refs. Abstracted in: Nuclear Sc. Abstr., 1953, 7: No. 2947; Biol. Abstr., Balt., 1954, 28: No. 15977.

2340
Robinson, R. A. and Watson, M. L. ELECTRON MICROGRAPHY OF BONE. Tr. Conf. Metab. Interrelat., 1953, 5.Conf., 72-104. Conference Discussion: p. 103-104. 116 refs.

2341
*Rouiller, C., Huber, L. and Rutishauser, E. LES FIBRILLES DE LA SUBSTANCE FONDAMENTALE DU CARTILAGE HYALIN. ETUDE AU MICROSCOPE ÉLECTRONIQUE. (NOTE PRÉLIMINAIRE). Arch. sc., Genève, 1952, 5: 215-218. Abstracted in: Excerpta med., Sect. 1, 1953, 7: No. 1481.

2342
Rouiller, C., Huber, L. and Rutishauser, E. LA STRUCTURE DE LA DENTINE. ÉTUDE COMPARÉE DE L'OS ET DE L'IVOIRE AU MICROSCOPE ELECTRONIQUE. Acta anat., Basel, 1952, 16: 16-28. 22 refs. English and German summaries. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 16394; Excerpta med., Sect. 1, 1953, 7: No. 1299.

2343
Rouiller, C., Huber, L., Kellenberger, E. and Rutishauser, E. LA STRUCTURE LAMELLAIRE DE L'OSTÉONE. Acta anat., Basel, 1952, 14: 9-22. 12 refs. English and German summaries. Abstracted in: Biol. Abstr., Balt., 1952, 26: No. 21688; Excerpta med., Sect. 1, 1953, 7: No. 66. Study was made with optical and electron microscope, using the replica technique.

2344
*Rutishauser, E., Huber, L., Kellenberger, E., Majno, G. and Rouiller, C. ETUDE DE LA STRUCTURE DE L'OS AU MICROSCOPE ÉLECTRONIQUE. Arch. sc., Genève, 1950, 3: 175-180. Abstracted in: Biol. Abstr., Balt., 1952, 26: No. 31244; Excerpta med., Sect. 1, 1951, 5: No. 1350.

2345
Schwarz, W. and Pahlke, G. ELEKTRONENMIKROSKOPISCHE UNTERSUCHUNGEN AN DER INTERZELLULARSUBSTANZ DES MENSCHLICHEN KNOCHENGEWEBES. Zschr. Zellforsch., 1953, 38: 475-487. 12 refs.

See:

562 565 1270

STRUCTURE - MECHANICAL INFLUENCE

see MECHANICAL INFLUENCE

STRUCTURE - POLARIZED AND OTHER LIGHT STUDIES

2346
Dallemagne, M. and Mélon, J. LA PROPORTION DES ÉLÉMENTS MINÉRAUX ET ORGANIQUES DANS LES DIFFÉRENTES RÉGIONS DU SYSTÈME HAVERSIEN DE L'OS. C. rend. Soc. biol., 1944, 138: 1031-1034. 2 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1946-47, 16: No. 607. Studies in polarized light of cross sections of the Haversian systems demonstrated that the light and dark zones observed in the surrounding lamellae were not due to differences in calcification, since the relative birefringeance was identical.

2347
Fowler, E. P. and Applebaum, E. BONE STUDIES IN ULTRA-VIOLET LIGHT. Anat. Rec., 1933, 55: 23-39. 15 refs. A method is described and data obtained by this method is presented.

2348
Jaccard, R. and Grosjean, M. DIE UNTERSUCHUNG VON HARTGEWEBEN (KNOCHEN UND ZÄHNEN) IM REFLEKTIERTEN LICHT. Deut. zahnärztl. Zschr., 1949, 4: 1234-1250. Abstracted in: Biol. Abstr., Balt., 1950, 24: No. 15964.

2349
Sestini, [F.] OSSERVAZIONI COL MICROSCOPIO A LUMINESCENZA. (2ª NOTA). OSSERVAZIONI SUL TESSUTO OSSEO. Atti Accad. fisiocr. Siena, 1934, 11.ser., 2: sez. med. fis., 30.

See:

129 560 561 620

STRUCTURE - VARIATIONS WITH AGE

2350
Amprino, R. COME SI COSTITUISCE L'ARCHITETTURA DELLA SOSTANZA SPUGNOSA DELLE EPIFISI. (RICERCHE SUL FEMORE DELL'UOMO NELLE VARIE ETÀ). Monit. zool. ital., 1938, 48: Suppl., 275-278. pl. Studies in polarized light of frontal sections of the upper end of the femur of individuals of different ages showed a great and rapid change in the arrangement of the trabeculae from the second year of life, which decreased with age. These changes were believed to depend upon mechanical stimuli, since it was observed that from the first appearance of the epiphyseal nucleus the distribution of the trabeculae corresponded to the lines of weight-bearing. Simultaneous modifications in the structure of the spongiosa trabeculae of the second and third order were also noted.

2351
Amprino, R. LA STRUCTURE DU TISSU OSSEUX ENVISAGÉE COMME EXPRESSION DE DIFFÉRENCES DANS LA VITESSE DE L'ACCROISSEMENT. Arch. biol., Par., 1947, 58: 315-330. 15 refs. Discussion of the relation between bone structure and the rate of somatic growth. Structural variations in the bones of animals of different species or of the same species are attributed to difference in rates of somatic growth.

2352
Amprino, R. LA STRUTTURA DELLE OSSA DELL'UOMO SOTTRATTE ALLE SOLLECITAZIONI MECCANICHE. CONSIDERAZIONI SUL SIGNIFICATO FUNZIONALE DELLE STRUTTURE DELLA SOSTANZA COMPATTA. Roux Arch., 1938, 138: 305-322. Abstracted in: Biol. Abstr., Balt., 1939, 13: No. 9492. A study of the structure of the diaphyseal compact bone of the immobilized extremities of individuals of various ages. The structure is qualitatively the same as that of bones under normal mechanical stress, but the processes of reconstruction are slower than in normal bone.

2353
Amprino, R. TRANSFORMATIONS HISTOLOGIQUES PENDANT L'ACCROISSEMENT ET LA REMANIEMENT DU COL DU FÉMUR APRÈS LA NAISSANCE. C. rend. Ass. anat., 1937, 32: 19-35. Studies in polarized light with special staining methods were made of sections of the femur neck of 37 individuals from birth to old age. The progressive modifications observed in the structure and distribution of the spongiosa trabeculae and lamellae suggested a gradual reorientation of bone structure for more perfect mechanical resistance.

2354
Amprino, R. and Bairati, A. PROCESSI DI RICOSTRUZIONE E DI RIASSORBIMENTO NELLA SOSTANZA COMPATTA DELLE OSSA DELL'UOMO. RICERCHE SU CENTO SOGGETTI DALLA NASCITA SINO A TARDA ETÀ. Zschr. Zellforsch., 1936, 24: 439-511. Approx. 93 refs. The processes of change in the compacta of sections of the human diaphysis, upper occipital squamosa, humerus, tibia and digital phalanx, pre-natal to old age, were studied in direct and polarized light and with appropriate staining. Histological modifications observed are described in detail and the mechanical significance of structural changes in the compacta at the various ages are discussed. The article contains a review of the literature.

2355
Amprino, R. and Trivellini, A. IL SIGNIFICATO FUNZIONALE DELL'ARCHITETTURA E DELLA STRUTTURA DEL COLLO DEL FEMORE NELLE VARIE ETÀ ED IN CONDIZIONI PATOLOGISCHE. Arch. ital. chir., 1937, 47: 1-36. 18 refs.

2356
Ascenzi, A. CONTRIBUTO ALLO STUDIO DELLE PROPRIETÀ OTTICHE DELL'OSSO UMANO NORMALE. I. SULL'INDICE DI RIFRAZIONE. Atti Accad. naz. Lincei, Rendic., Class. sc. fis., 1948, 4: 777-783. 6 refs. Abstracted in: Biol. Abstr., Balt., 1949, 23: No. 29326.

2357
Ascenzi, A. QUANTITATIVE RESEARCHES IN THE OPTICAL PROPERTIES OF HUMAN BONE. Nature, Lond., 1949, 163: 604. 8 refs. Abstracted in: Excerpta med., Sect. 1, 1949, 3: No. 1614; Biol. Abstr., Balt., 1949, 23: No. 28381.

2358
Bader, L. and Canuto G. I CANALI DI HAVERS IN RAPPORTO ALL'ETA. Arch. antrop. crim., Tor., 1930, 50: 232-241. 10 refs. Abstracted in: Biol. Abstr., Balt., 1932, 6: No. 8307.

2359
Bohatirchuk, F. SOME MICRORADIOGRAPHICAL DATA ON BONE AGING. Anat. Rec., 1953, 115: 286-287. An abstract. The author believes that lack of a satisfactory method of bone examination is one of the causes of delay in the progress of this study. With microradiography, the necessity of preliminary decalcification and possible artefacts may be avoided. It is pointed out that in microradiographs two kinds of exostosis may be differentiated; that having the structure of bone, which is pathologic and the structureless, which may be seen in normal old persons.

2360
Brouwer, E. OVER BEENSTRUCTUUR EN VOEDING BIJ MENS EN DIER. Voeding, 1952, 13: 55-65. 14 refs. Abstracted in: Excerpta med., Sect. 2, 1953, 6: No. 4913. Microscopic studies of sections of the tubular bones of man and cattle indicate marked differences in the structure of compact bone. In cattle this structure consists mainly of thin scales, laminae, of coarsely fibrous bone arranged concentrically around the central cavity of the shaft with some lamellae deposited on either side. In man a similar structure exists in youth but is gradually changed by continual resorption and rebuilding into the structure of haversian, interstitial and basic lamellae of the adult. Mechanical influences (pressure pull, bend, torsion) are considered as factors in the change.

2361
Bruno, G. RICERCHE SULLO SVILLUPO E SULLA MORFOLOGIA DELLO SPERONE FEMORALE (LAMINA FEMORALIS INTERNA) NELL'UOMO ED IN ALTRI VERTEBRATI. Arch. ital. anat., 1933, 31: 253-285. 34 refs. Abstracted in: Biol. Abstr., Balt., 1935, 9: No. 19824.

2362
Bruno, G. ÜBER SENILE STRUKTURVERÄNDERUNGEN DER PROXIMALEN HUMERUS EPIPHYSE. Fortsch. Röntgenstrahl., 1934, 50: 287-289.

2363
Chamberlin, G. W. METABOLIC BONE CHANGES WITH AGING. Pennsylvania, M. J., 1953, 56: 984-985. An editorial pointing out to the physician the structural changes in bone associated with aging; description of the changes, their detection and treatments in senile osteoporosis, Paget's disease and degenerative joint disease are briefly discussed.

STRUCTURE - VARIATIONS WITH AGE (Continued)

2364
Filogamo, G. FORMA E LUNGHEZZA DEGLI OSTEONI DELLA COMPATTA DELLE OSSA LUNGHE, NELL'UOMO. Ricer. morf., 1952, 22: 91-98. 2 pl. 4 refs. English, French and German summaries. Complete reconstructions of Haversian systems in different bones of man at different ages were carried out. It was shown: concentric Haversian systems pass into fragments of debris and seldom exist as complete cylindrical systems; they become shorter with advancing age; at points where remodelling takes place earlier (as at points of insertion of tendons) they are very short.

2365
Filogamo, G. LA FORME ET LA TAILLE DES OSTÉONES CHEZ QUELQUES MAMMIFÈRES. Arch. biol., Par., 1946, 57: 137-143. 6 refs. A study of the size and shape of the Haversian systems of the compact bone of the ox, the horse and the dog at different ages. Comparisons are made with findings in bones of man.

2366
Gellért, A. AZ EMBERI CSONTOK TÉRFOGATARÁNYAI ES POROSITÁS VISZONYAI TIZ EGYÉN CSONTVÁZÁN. A CSIGOLYAKNAK ÉS A CSONTOS GERINCOSZLOP SZAKASZAINAK TÉRFOGATARÁNYAI. [VOLUME, PROPORTION AND POROSITY OF THE HUMAN BONES; STUDY OF 10 SKELETONS] Magy. orv. arch., 1930, 31: 229-246. 5 refs.

2367
Orlov, M. IA. K VOPROSU O VOZRASTNYKH IZMENENIAKH GISTOSTRUKTURY BEDRA U CHELOVEKA. [AGE VARIATIONS OF HISTOSTRUCTURE OF THE FEMUR IN MAN] Antrop. J., Moskva, 1937, No. 2, 83-101. 38 refs.

2368
Peacock, A. OBSERVATIONS ON THE POSTNATAL STRUCTURE OF THE INTERVERTEBRAL DISC IN MAN. J. Anat., Lond., 1952, 86: 162-179. 3 pl. 52 refs. Abstracted in: Excerpta med., Sect. 1, 1953, 7: No. 2277; Biol. Abstr., Balt., 1953, 27: No. 19693.

See:

287 559 1542 1567 1615
1628 1670 2292

STRUCTURE - X-RAY DIFFRACTION STUDIES

2369
Amprino, R. and Engström, A. RISULTATI DI UNO STUDIO SULL'ASSORBIMENTO E SULLA DIFFRAZIONE DEI RAGGI ROENTGEN DA PARTE DEL TESSUTO OSSEO. Boll. Soc. ital. biol. sper., 1950, 26: 148-151. Abstracted in: Excerpta med., Sect. 2, 1951, 4: No. 1954. X-ray-absorption and -diffraction studies of the relative concentrations of calcium salts in treated sections of long and flat bones of various species (man, horse, dog, rabbit, fowl) at various ages.

2370
Amprino, R. and Engström, A. STUDIES ON X-RAY ABSORPTION AND DIFFRACTION OF BONE TISSUE. Acta anat., Basel, 1952, 15: 1-22. 50 refs. French and German summaries. Abstracted in; Excerpta med., Sect. 1, 1953, 7: No. 461; Brit. Abstr., Sect. AIII, 1953, p. 133. Ground sections of compact and spongy bone of different mammals of various ages were studied and the mineral distribution, relative calcium content and calcification processes analyzed.

2371
*Bale, W. F. X-RAY DIFFRACTION STUDIES OF BONE AND TOOTH SUBSTANCE. Rochester, N. Y. (Thesis-Univ. Rochester). Unpublished. Dr. Bale's doctoral dissertation has not been published in entirety in any form. A part of it appeared in his report in the Am. J. Roentg., 1940, 43: 735-747.

2372
*Carlstrom, D. and Finean, J. B. X-RAY DIFFRACTION STUDIES ON THE ULTRASTRUCTURE OF BONE. Biochim. biophys. acta, Amst., 1954, 13: 183-191.

2373
Dawson, I. M. THE INVESTIGATION OF BONE STRUCTURE BY X-RAY DIFFRACTION. Biochem. J., Lond., 1945, 39: Proc. 37. An abstract. Specimens of normal and rachitic bone were examined. The study indicated that the chemical constitution and the orientation of the principal constituents of bone are unaltered in rickets and that any change in bone strength is due to change in the proportion of the constituents.

2374
*Engström, A. and Amprino, R. X-RAY DIFFRACTION AND X-RAY ABSORPTION STUDIES OF IMMOBILIZED BONES. Experientia, Basel, 1950, 6: 267-269. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 17473.

2375
Engström, A. and Engfeldt, B. X-RAY DIFFRACTION STUDIES ON BONE TISSUE DURING HYPERPARATHYROIDISM. Acta path. microb. scand., 1951, 28: 152-156. 5 refs. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 33384; Chem. Abstr., 1951, 45: 5296c.

2376
Finean, J. B. and Engström, A. LOW ANGLE REFLECTION IN X-RAY DIFFRACTION PATTERNS OF BONE TISSUE. Experientia, Basel, 1954, 10: 63-64. 2 refs. Abstracted in: Biol. Abstr., Balt., 1954, 28: No. 23508.

2377
Finean, J. B. and Engström, A. THE LOW-ANGLE SCATTER OF X-RAYS FROM BONE TISSUE. Biochim. biophys. acta, Amst., 1953, 11: 178-189. 25 refs. In this study of longitudinal and cross-sections from intact normal human bone, "the scattering particles appear to be of uniform size and to approximate to rods which have a diameter of about 75A and are about 210A long. The particles appear to be well-aligned, with their long axes in the direction of the longitudinal axis of the bone and parallel to the collagen fibre axis. Particles from other types of normal bone seem to be of a similar shape and size."

2378
Henny, G. C. and Spiegel-Adolf, M. X-RAY DIFFRACTION STUDIES ON FISH BONES. Am. J. Physiol., 1945, 144: 632-636. 12 refs. Abstracted in: Chem. Abstr., 1946, 40: 1403. X-ray diffraction patterns of fish bones were compared with those of bones of various mammals.

2379
Hirschman, A. and Fankuchen, I. A MICRO X-RAY DIFFRACTION STUDY ON THE STRUCTURE OF IMMATURE RAT BONE. Anat. Rec., 1949, 103: 469.

2380
Lamarque, P. ETUDE DE L'OS HUMAIN PAR LA DIFFRACTION DES RAYONS X. C. rend. Acad. sc., 1943, 216: 804-805. 2 refs. Abstracted in: Chem. Abstr., 1944, 38: 46234.

2381
Lamarque, P. and Mering, J. ÉTUDE SUBMICROSCOPIQUE DE L'OS HUMAIN PAR LA DIFFRACTION DES RAYONS X. J. radiol. électr., 1942-43, 25: 201-205. 5 refs.

STRUCTURE - X-RAY DIFFRACTION STUDIES
(Continued)

2382
Reed, C. I. and Reed, B. P. ALTERATIONS IN X-RAY DIFFRACTION PATTERN OF RAT TIBIA IN RICKETS. Proc. Soc. Exp. Biol., N. Y., 1942, 50: 196-198. 8 refs. Abstracted in: Biol. Abstr., Balt., 1943, 17: No. 1528. "Diffractograms of normal bone shows preferred orientation in d-3.34. In rickets there is disorientation that persists even after 275 days on an antirachitic diet." - Biol. Abstr.

2383
Reed, C. I. and Reed, B. P. EVIDENCE OF THE PERIPHERAL ACTION OF VITAMIN D FROM X-RAY DIFFRACTION STUDIES. Am. J. Physiol., 1945, 143: 413-419. 5 refs. Abstracted in: Biol. Abstr., Balt., 1945, 19: No. 15847.

2384
Reed, C. I., Struck, H. C. and Reed, B. P. A COMPARATIVE STUDY OF NORMAL, RACHITIC AND HEALED RACHITIC BONE BY X-RAY DIFFRACTION TECHNIC. Fed. Proc., Balt., 1942, 1: Pt. 2, 70. An abstract.

2385
Spiegel-Adolf, M. and Henny, G. C. X-RAY DIFFRACTION STUDIES ON FISH BONES. Fed. Proc., Balt., 1945, 4: 105. An abstract.

See:

20	275	383	401	556
617	619	621	626	627
639	640	641	658	659
2088	2239	2240		

STRUCTURE - X-RAY MICROSCOPIC STUDIES

2386
Amprino, R. ASPETTI DEL METABOLISMO MINERALE DELLO SCHELETRO ANALIZZATI CON L'ASSORBIMENTO DEI RAGGI ROENTGEN. Arch. "Putti", 1952, 2: 173-183. 13 refs. Abstracted in: Excerpta med., Sect. 5, 1953, 6: No. 1318. The mineral metabolism of sections of bone ground substance is studied by a microphotographic-photometric method of x-ray absorption. The method is described.

2387
Amprino, R. RECHERCHES SUR LA DISTRIBUTION DES MINÉRAUX DANS LA SUBSTANCE FONDAMENTALE DE L'OS. Arch. anat., Strasb., 1952, 34: 9-17. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 6506. X-ray absorption studies of ground sections of fresh bone from young animals were made to determine mineral concentration during the formation of the ground substance. Primary bone attained a high degree of calcification during its formation and thereafter remained relatively uniform while the calcification of secondary bone differed in accordance with the periods in which it was formed. In the same bone, the calcification of primary bone was a more rapid process than that of secondary bone.

2388
Andreatta, C. and Forni, I. CONFRONTO FRA SPETTROGRAMMI DEBYE DI CARTILAGINE UMANA NATURALE, DI OSSO DEMINERALIZZATO E DI OSSO NATURALE. Atti Accad. naz. Lincei, Rendic., Class. sc. fis., 1953, 15: 147-149. pl. 4 refs. Abstracted in: Chem. Abstr., 1954, 48: 3514f.

2389
Becher, H., Hoegen, K. and Pfefferkorn, G. SUBLICHTMIKROSKOPISH-MORPHOLOGISCHE UNTERSUCHUNGEN DES ANORGANISCHEN KNOCHENANTEILS. Acta anat., Basel, 1954, 20: 105-115. 8 refs. Electron-microscopic study. "The units are 10-40 mμ crystals of hydroxylapatite. They show a lamellated structure of one or several layers which are separated from one another by small fissures. The quantity of the inorganic matter during osteogenesis increases first in the diaphysis. X-rays show an equal distribution of small crystals throughout the bone and larger crystals in the outermost layer only. In stereophotographs the arrangement of the hydroxylapatite crystals may be seen parallel to the white fibril. Several layers of crystals surround the lattice of white fibres."

2390
Clark, G. L., Bucher, C. S. and Lorenz, O. AN EXTENSION OF X-RAY RESEARCHES ON THE FINE STRUCTURES OF COLLOIDS TO NORMAL AND PATHOLOGICAL HUMAN TISSUES. Radiology, 1931, 17: 482-504. Discussion: p. 502-504. 25 refs. Abstracted in: Chem. Abstr., 1931, 25: 5679. Bone and cartilage were included in the tissues studied.

2391
Cohen, J. and Lacroix, P. COMPARISON OF MICRORADIOGRAPHIC AND HISTOLOGIC PATTERNS IN BONE. Laborat. Invest., 1953, 2: 447-450. 4 refs. Microradiographic "patterns of mineral distribution compared with the histologic staining pattern, showed that, in general, when the mineral concentration was high, the organic content was low, and vice versa."

2392
Engström, A. and Engfeldt, B. LAMELLAR STRUCTURE OF OSTEONS DEMONSTRATED BY MICRORADIOGRAPHY. Experientia, Basel, 1953, 9: 19. 9 refs. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 6172.

2393
Konishi, S. [AN X-RAY-INTERFEROMETRIC STUDY OF THE ULTRAMICROSCOPIC STRUCTURE OF HUMAN TISSUES] Mitt. Med. Akad. Kioto, 1940, 31: 809-865. pl. 58 refs. German summary, p. 1006. Abstracted in: Biol. Abstr., Balt., 1942, 16: No. 7190.

2394
Landoff, G. A. ON THE INFLUENCE OF THE BONE SALTS ON THE RADIOGRAPH OF SO-CALLED ACUTE ATROPHY OF BONE. Acta orthop. scand., 1948, 17: 270-302. 53 refs.

2395
Poglayen, C. and Tomasi, L. SU ALCUNE PROPRIETÀ OTTICHE DIFFERENZIALI FRA TESSUTO OSSEO NORMALE E TESSUTO OSSEO NECROTICO. Arch. "Putti", 1952, 2: 190-206. 24 refs. Abstracted in: Excerpta med., Sect. 5, 1953, 6: No. 3802. A comparative study, by polarizing microscope, of the structural differences between sections of normal and necrotic bone. The article contains a review of the literature.

2396
Shirakawa, S. DAS HAUPTSALZ IM KNOCHENGEWEBE. FORMS NR. 5: UNTERSUCHUNGEN ÜBER DIE TRANSMIKROSKOPISCHE STRUKTUR DES LEBEWESENKÖRPERS. (Funaoka, S.) Acta Scholae med. Univ. Kioto, 1930-1931, 13: 250-259. 4 pl. 3 refs. Abstracted in: Chem. Abstr., 1931, 25: 3709.

See:

317	644	647

TEETH

2397
Bagnall, J. S. BIBLIOGRAPHY ON CARIES RESEARCH. Ottawa, Associate Committee on Dental Research, 1950. The sections on formation and calcification under dentin, enamel and tooth structure as well as those sections on diet and enzymes may be of particular interest.

2398
[BIBLIOGRAPHY] IN: BIOCHEMICAL AND NUTRITIONAL STUDIES IN RELATION TO THE TEETH. (Armstrong, W. D.) Annual Rev. Biochem., 1942, 11: 459-464. 161 refs. Abstracted in: Chem. Abstr., 1942, 36: 4869[5].

2399
Campbell, I. R., Christian, M. R. and Widner, E., comps. CLASSIFIED BIBLIOGRAPHY OF PUBLICATIONS CONCERNING FLUORINE AND ITS COMPOUNDS IN RELATION TO MAN, ANIMALS, AND THEIR ENVIRONMENT INCLUDING EFFECTS ON PLANTS. PART I. INORGANIC FLUORINE COMPOUNDS. PART II. ORGANIC FLUORINE COMPOUNDS. Cincinnati, Kettering Laboratory of Applied Physiology, College of Medicine, University of Cincinnati, 1950-1953.

2400
Leicester, H. M. BIOCHEMISTRY OF THE TEETH. 306p. St. Louis, Mosby, 1949. Chapter endings have lists of references.

2401
Leicester, H. M. THE BIOCHEMISTRY OF THE TEETH. Annual Rev. Biochem., 1953, 22: 341-349. 117 refs.

2402
Smith, F. A. and Cox, G. J. A BIBLIOGRAPHY OF THE LITERATURE, 1936-1952 ON THE PHARMACOLOGY AND TOXICOLOGY OF FLUORINE AND ITS COMPOUNDS, INCLUDING EFFECTS ON BONES AND TEETH. [186p.] Rochester, University of Rochester Atomic Energy Project. (UR-154 rev.) A list of 2449 references.

TISSUE CULTURE

see also CELLS and subdivisions

2403
Bucher, O. UNTERSUCHUNGEN UBER DIE REGENERATIONSVORGANGE AN EXPERIMENTELL GESETZTEN KONCHENBRUCHEN IN DER KULTURE IN VITRO. Acta anat., Basel, 1952, 14: 98-107. 12 refs. Abstracted in: Biol. Abstr., Balt., 1952, 26: No. 31205.

2404
Fell, H. B. HISTOGENESIS IN TISSUE CULTURE. IN: CYTOLOGY AND CELL PHYSIOLOGY. 2.ed. (Bourne, G. H., ed.) Oxford, Clarendon Press, 1952, p. 418-443. 2 pl. 154 refs. See particularly, Skeletal tissue: p. 422-429.

2405
Fell, H. B. THE OSTEOGENIC CAPACITY IN VITRO OF PERIOSTEUM AND ENDOSTEUM ISOLATED FROM THE LIMB SKELETON OF FOWL EMBRYOS AND YOUNG CHICKS. J. Anat., Lond., 1932, 66: 157-180. 6 pl. 14 refs. Abstracted in: Biol. Abstr., Balt., 1933, 7: No. 11959. The study was made of the periosteum of the limb bones at different stages of development.

2406
Fell, H. B. OSTEOGENESIS IN VITRO. Arch. exp. Zellforsch., 1931, 11: 245-252. 15 refs.

2407
Fell, H. [B.] TISSUE CULTURE AND THE STUDY OF SKELETAL DEVELOPMENT. Lancet, Lond., 1935, 1: 681.

2408
Fell, H. B. and Robison, R. THE DEVELOPMENT OF THE CALCIFYING MECHANISM IN AVIAN CARTILAGE AND OSTEOID TISSUE. Biochem. J., Lond., 1934, 28: 2243-2253. 3 pl. 9 refs. Abstracted in: Biol. Abstr., Balt., 1935, 9: No. 14796; Chem. Abstr., 1935, 29: 3012[6]. "It is concluded that developing osteoid tissue and hypertrophic cartilage do not at once acquire the calcifying mechanism but that this mechanism is gradually developed during the course of differentiation."

2409
Fischer, A. WACHSTUM VON HYALINEM KNORPEL IN VITRO. Roux Arch., 1931-1932, 125: 203-209. 7 refs.

2410
*Fujii, T. and Simazaki, S. EFFECT OF IRRADIATED ERGOSTEROL ON THE CALCIFICATION OF CHICK TISSUES IN VITRO. J. Fac. Sc., Univ. Tokyo, Sect. IV, 1943, 6: 195-205. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 16500. "Ca deposition was observed in most of the cultures receiving vitamin D, while not taking place in controls even when highly concentrated $CaCl_2$ solution was added. Limb-buds proved to have the highest rate of calcification and it was suggested that one of the essential actions of vitamin D is a direct influence on Ca deposition." - Biol. Abstr.

2411
Gaillard, P. J. DEVELOPMENTAL CHANGES IN THE COMPOSITION OF THE BODY FLUIDS IN RELATION TO GROWTH AND DIFFERENTIATION OF TISSUE CULTURES. Protoplasma, Lpz., 1935, 23: 145-174. 11 refs. Abstracted in: Biol. Abstr., Balt., 1936, 10: No. 19659.

2412
Gaillard, P. J. GESETZMÄSSIGKEITEN BEIM WACHSTUM VON GEWEBEKULTUREN. I. ANALYSE DER ZELLTEILUNGSFREQUENZ. Protoplasma, Lpz., 1935, 24: 384-403. 9 refs. Abstracted in: Biol. Abstr., Balt., 1936, 10: No. 12596. A study to determine "what conditions are responsible for changes in the number of mitotic divisions per 100 cells, which exist in the growth zones of strain cultures of the primordial os frontale of 15 day old embryos." Conclusion: "... there is no simple direct relation between the number of mitosis per 1000 cells and the local density per unit of volume, as the lines do not run in 45° position in the graphic representation."

2413
Gaillard, P. J and Hecht, E. EIN BEITRAG ZUR VEREINFACHUNG GEWEBEZÜCHTERISCHE KULTURMEDIEN. ERSATZ DER KOAGULATIONSWIRKUNG DES EMBRYONALEXTRAKTES. Protoplasma, Lpz., 1935, 23: 1-13. 14 refs.

2414
Heinen, J. H., Jr. THE DIFFERENTIATION OF BONE AND CARTILAGE FROM TISSUE CULTURES OF OSTEOGENIC CELLS. 24p. Chicago, 1949. (Thesis-Univ. Chicago).

2415
Hopkins, F. G. and Simon-Reuss, I. THE EFFECT OF HYPOXANTHINE ON THE GROWTH OF AN AVIAN TISSUE IN VITRO. Proc. R. Soc., Ser. B, Biol. Sc., Lond., 1944, 132: 253-257. 10 refs. Abstracted in: Biol. Abstr., Balt., 1945, 19: No. 10652.

2416
Jacobson, W. and Fell, H. B. THE DEVELOPMENTAL MECHANICS AND POTENCIES OF THE UNDIFFERENTIATED MESENCHYME OF THE MANDIBLE. Q. J. Micr. Sc., Lond., n.s., 1940-1941, 82: 563-586. 5 pl. 4 refs.

TISSUE CULTURE (Continued)

2417
Krasovskaia, O. V. DIFERENTSIATSIIA SKELETOGENNOI MEZENKHIMY KURINOGO EMBRIONA IN VITRO. [DIFFERENTIATION OF SKELETOGENIC MESENCHYMA OF CHICK EMBRYO IN VITRO] Arkh. biol. nauk, 1934, 34: 193-208. 40 refs. German summary. Abstracted in: Biol. Abstr., Balt., 1936, 10: No. 4484.

2418
*Levi, G. TISSUE CULTURE STUDIES ON INTRINSIC AND EXTRINSIC FACTORS IN BONE DEVELOPMENT. J. internat. chir., Brux., 1953, 13: 416-422.

2419
Mitchell, J. R. GROWTH OF EMBRYONIC RAT BONE IN CIRCULATING MEDIUM. Anat. Rec., 1950, 106: 111-114. 4 refs. Abstracted in: Excerpta med., Sect. 1, 1950, 4: No. 1469; Biol. Abstr., Balt., 1950, 24: No. 18856.

2420
Möllendorff, W. von. DAS MUTTERSTÜCK VON BINDEGEWEBSKULTUREN. EIN BEITRAG ZUR FRAGE, WIE KONSTRUKTIVE FASERSYSTEME UND HARTSUBSTANZEN ENTSTEHEN. Zschr. Zellforsch., 1932, 15: 131-160. Abstracted in: Biol. Abstr., Balt., 1934, 8: No. 20958.

2421
Niven, J. S. F. THE REPAIR "IN VITRO" OF EMBRYONIC BONES AFTER EXPERIMENTAL FRACTURE. Arch. exp. Zellforsch., 1931, 11: 253-258. Discussion: p. 257-258.

2422
Niven, J. S. F. THE REPAIR IN VITRO OF EMBRYONIC SKELETAL RUDIMENTS AFTER EXPERIMENTAL INJURY. J. Path. Bact., Lond., 1931, 34: 307-324. 3 pl. 9 refs.

2423
Paff, G. H. INFLUENCE OF PH ON GROWTH OF BONE IN TISSUE CULTURE. Proc. Soc. Exp. Biol., N. Y., 1948, 68: 288-293. 19 refs. Abstracted in: Biol. Abstr., Balt., 1949, 23: No. 4158; Chem. Abstr., 1948, 42: 8292h. "More bone was formed and more Ca deposited at the low than at the high pH. These results are strong evidence against the theory that the local factor in bone growth is a change in pH toward the alkaline region."

2424
Paff, G. H. and Eksterowicz, F. C. THE SELECTIVE STOPPAGE OF BONE GROWTH IN TISSUE CULTURE. Anat. Rec., 1950, 108: 45-55. 8 refs. Abstracted in: Excerpta med., Sect. 1, 1951, 5: No. 550; Biol. Abstr., Balt., 1951, 25: No. 17441. Alizarin red S stops all osteogenetic activity in embryonic chick metatarsals but does not interfere with growth of cartilage and fibrous connective tissue. It is suggested that the blocking of the process of osteogenesis may be due to formation of a non-utilizable calcium lake within cells responsible for formation of bone.

2425
Roche, J. and Deltour, G. H. CALCIFICATION IN VITRO ET MODIFICATIONS EXPÉRIMENTALES DE L'AFFINITÉ DE L'OS POUR LES IONS $PO_4^{\equiv}$ ET CA^{++}. C. rend. Soc. biol., 1943, 137: 531-532. 1 ref. Abstracted in: Chem. Abstr., 1945, 39: 25175.

2426
Rodová, H. OBSERVATIONS ON THE INITIAL STAGES OF OSSIFICATION IN VITRO. J. Anat., Lond., 1948, 82: 175-182. 2 pl. 25 refs. Abstracted in: Excerpta med., Sect. 1, 1950, 4: No. 1667; Biol. Abstr., Balt., 1949, 23:

2427
Roulet, F. AU SUJET DE LA STRUCTURE DE LA "CAPSULE" DES CELLULES CARTILAGINEUSES. Ann. anat. path., Par., 1935, 12: 439-446. 6 refs. Abstracted in: Biol. Abstr., Balt., 1936, 10: No. 17036. A block of hyaline cartilage was stripped of the perichondrium and cultured in homologous plasma containing colonies of fibroblasts. Fibrocytic action upon the cartilage resulted in resorption of peripheral areas of the cartilage and exposure and development of the pre-existant pericellular fibrillary networks of the cartilage ground substance, sometimes called "capsules". Identical phenomena were observed during the course of endochondral ossification.

2428
Rumiantsev, A. V. and Berezkina, L. F. DEVELOPMENT OF BONE TISSUE IN PURE CULTURES OF OSTEOGENIC MESENCHYME IN VITRO. C. rend. Acad. sc. URSS, 1944, 45: 42-44. 5 refs.

2429
Törö, E. BEITRÄGE ZUR KAUSALEN GENESE DER KNORPEL- UND KNOCHENENTWICKLUNG. Anat. Anz., 1935, 80: 285-294. 19 refs. Abstracted in: Biol. Abstr., Balt., 1936, 10: No. 17090.

2430
Weil, J. T. LA CONSOLIDATION DE FRACTURES IN VITRO ET L'INFLUENCE DE L'OSSOPAN. Schweiz. Zschr. allg. Path., 1951, 14: 205-224. 35 refs. Abstracted in: Excerpta med., Sect. 5, 1951, 4: No. 3362.

2431
Willmer, E. N. and Jacoby, F. STUDIES ON THE GROWTH OF TISSUES IN VITRO. IV. ON THE MANNER IN WHICH GROWTH IS STIMULATED BY EXTRACTS OF EMBRYO TISSUES. J. Exp. Biol., Lond., 1936, 13: 237-248. 8 refs.

2432
*Zaayer, J. J. P. EMBRYONALE PIJPBEENTJES VAN DE MENS IN VITRO. 57p. 1953. (Thesis-Univ. Leyden). Abstracted in: Excerpta med., Sect. 1, 1954, 7: No. 1006.

See:

5	150	152	178	442
453	554	697	731	733
747	1133	1299	1624	1625
1658	2434	2462	2731	2732
2733	2762			

TISSUE CULTURE - BIBLIOGRAPHY

2433
Murray, M. R. and Kopech, G. A BIBLIOGRAPHY OF THE RESEARCH IN TISSUE CULTURE, 1884 TO 1950. New York, Academic Press, 1953. v.1 Bone: p. 189-206. Cartilage: p. 278-283.

See:

186

TISSUE TRANSPLANTS

2434
Allgöwer, M. and Rosin, A. DAS PERIOSSÄRE GEWEBE DES NORMALEN AND FRAKTURIERTEN KNOCHENS IN DER GEWEBSKULTUR. Bull. Schewiz. Akad. med. Wiss., 1953, 9: 181-208. 18 refs. Abstracted in: Biol. Abstr., Balt., 1954, 28: No. 13584; Excerpta med., Sect. 9, 1954, 8: No. 4007.

2435
Aspiz, M. E. SPOSOBY ZAMESHCHENIIA KHRIASHCHA KOST'IU U KOSTISTYKH ZYB. [THE MANNER OF REPLACEMENT OF CARTILAGE BY BONE IN THE BONY FISHES] C. rend. Acad. sc. URSS, 1949, 68: 153-156. 7 refs. In bony fishes decalcified bones transplanted and placed in contiguity with cartilage provokes a depression of chondroblastic and an increase of osteoblastic activities. Modification of nutrition provokes destruction of cartilage, and osseous tissue is at the same time formed on its surface. Three processes of the cartilageous cells were observed: 1) Periosteal ossification with cartilaginous cells degeneration. 2) Endochondral ossification without participation of blood vessels and special cells. 3) The typical endochondral process of ossification observed in all species of vertebrates (hyoideum).

2436
Axhausen, G. IST DIE "KLASSISCHE OSTEOBLASTENLEHRE" BEI DER FREIEN KNOCHENTRANSPLANTATION UNHALTBAR GEWORDEN? Chirurg, 1951, 22: 163-166. 19 refs. Abstracted in: Excerpta med., Sect. 5, 1951, 4: No. 3363.

2437
*Axhausen, W. BIOLOGISCHE GRUNDLAGEN DER FREIEN KNOCHENUEBERPFLANZUNG. J. internat. chir., Brux., 1953, 13: 341-349.

2438
Axhausen, W. EXPERIMENTELLE UNTERSUCHUNGEN ZUR THEORIE DER "INDUZIERTEN" KNOCHENNEUBILDUNG (LEVANDER). Arch. klin. Chir., 1950, 266:381-398. 40 refs.

2439
*Axhausen, W. KNOCHENBILDUNGSFÄHIGKEIT DER FREI ÜBERPFLANZTEN KNOCHENHAUT. Zbl. Chir., 1952, 77: 27-36. Abstracted in: Excerpta med., Sect. 9, 1952, 6: No. 8884.

2440
Axhausen, W. DIE QUELLEN DER KNOCHENNEUBILDUNG NACH FREIER KNOCHENÜBERPFLANZUNG. Arch. klin. Chir., 1951, 270: 439-442. Discussion, p. 442-443. Abstracted in: Excerpta med., Sect. 1, 1953, 7: No. 1335. An examination of the theories of Levander, Heinen, Hegemann, Oberdalhoff and others on osteogenesis is followed by a description of personal experiments on adult dogs, which are interpreted as proving the survival of bone-building cells (osteoblasts) in transplanted tissue. Transplants of isolated periosteum did not form new bone but periosteum in the presence of bone, even necrosing bone, promoted osteogenesis.

2441
Barbieri, D. RICERCHE SUGLI INNESTI DI MIDOLLO OSSEO. Boll. Soc. ital. biol. sper., 1930, 5: 250-253.

2442
Barbieri, D. RICERCHE SUGLI INNESTI DI MIDOLLO OSSEO. NOTA II. Boll. Soc. ital. biol. sper., 1931, 6: 412-414. 1 ref. Abstracted in: Biol. Abstr., Balt., 1934, 8: No. 1894.

2443
Barbieri, D. RICERCHE SUGLI INNESTI DI MIDOLLO OSSEO. NOTA III. Boll. Soc. ital. biol. sper., 1931, 6: 1065-1068. 2 refs.

2444
Barnicot, N. A. THE LOCAL ACTION OF VITAMIN A ON BONE. J. Anat., Lond., 1950, 84: 374-387. pl. 22 refs. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 16491; Chem. Abstr., 1952, 46: 6212^{e}; Nutrit. Abstr., Aberdeen, 1950-51, 20: No. 4878. Vitamin A acetate was attached to small pieces of parietal bone from ten-day-old mice and the combination implanted into the cerebral hemisphere of litter mates. Examination of the grafts after 7 or 14 days showed marked resorption and numerous osteoclasts, often perforation. The skeletal effects of vitamin A deficiency and overdosage are discussed.

2445
Bingel, K. ORTLICHER STOFFWECHSEL UND GEWEBSREAKTION. ÜBER DIE BEEINFLUSSUNG TRANSPLANTIERTER KNORPELSTÜCKE DURCH GEWEBSFREMDE UMGEBUNG UND DURCH APPLIKATION VON SALZLÖSUNGEN ODER ORGANEXTRAKT. Beitr. path. Anat., 1937, 99: 205-223. 66 refs. Abstracted in: Chem. Abstr., 1937, 31: 6306^{4}.

2446
Bisgard, J. D. OSSIFICATION, THE INFLUENCE OF THE MINERAL CONSTITUENTS OF BONE. Arch. Surg., 1936, 33: 926-939. 16 refs. Abstracted in: Biol. Abstr., Balt., 1937, 11: No. 17080; Chem. Abstr., 1937, 31: 1867^{7}. "Thus synthetic bone salts failed to produce bone in ossifiable tissues and did not alter the ossification of osteogenic tissues, while bone, regardless of its viability, had a favorable effect." - Biol. Abstr.

2447
BONE REGENERATION. Lancet, Lond., 1952, 2: 383-385. 15 refs. A short survey devoted to: the fate of bone grafts, origin of osteoblasts, and bone formation by induction.

2448
Brücke, F. ZUR FRAGE DER BEDEUTUNG DES EPIPHYSENFUGENKNORPELS FÜR DAS WACHSTUM DER LANGEN RÖHRENKNOCHEN. (EXPERIMENTELLE UNTERSUCHUNG ÜBER RÜCKEINPFLANZUNG DES UM 180° GEDREHTEN FUGENKNORPELS.) Virchows Arch., 1931, 279: 641-670. 25 refs. Abstracted in: Biol. Abstr., Balt., 1933, 7: No. 4363.

2449
Camitz, H., Holmgren, H. and Johansson, H. CONTRIBUTION À L'ÉTUDE DE LA NATURE DE LA TRANSPLANTATION OSSEUSE. Acta chir scand., 1934, 75: 1-67. 73 refs. Abstracted in: Biol. Abstr., Balt., 1936, 10: No. 6860. Histological study of bone formation from homologous fragments of radii transplanted in dogs.

2450
Chidichimo, G. SULL'OSSIFICAZIONE SPERIMENTALE DI LEMBI D'ARTERIA ELASTICA E DI OSSO OMOPLASTICI INNESTATI NEL SOTTOCUTANEO. Minerva chir., Tor., 1948, 3: 52-56. Abstracted in: Excerpta med., Sect. 5, 1949, 2: No. 1562.

2451
Ciocca, E. CONTRIBUTO ALLO STUDIO ISTOLOGICO DEI TRAPIANTI OSSEI AUTOPLASTICI PER INFIBULAMENTO NELL'UOMO (TRAPIANTO A DISTANZA DI DUE ANNI E QUATTRO MESI). Chir. org. movim., 1934, 20: 129-139. 14 refs.

2452
Cioffi, A. SULLA IMPIOMBATURA DELLE OSSA CON MUSCOLO DI PICCIONE (CONTRIBUTO SPERIMENTALE). Rass. internaz. clin. ter., 1934, 15: 962-974. 10 refs.

2453
Copher, G. H. THE EFFECT OF URINARY BLADDER TRANSPLANTS AND EXTRACTS ON THE FORMATION OF BONE. A FURTHER EXPERIMENTAL STUDY. Tr. Am. Surg. Ass., 1938, 56: 423-429. 3 refs. Also in: Ann. Surg., 1938, 108: 934-940.

2454
Danini, E. S. SUR QUELQUES PROPRIÉTÉS DES CELLULES CARTILAGINEUSES ET SUR LES CAPACITÉS SQUELETTOGÈNES DU TISSU CONJONCTIF. Bull. histol. appl., Lyon, 1937, 14: 223-238. 39 refs. Abstracted in: Biol. Abstr., Balt., 1938, 12: No. 10696.

2455
Danini, E. S. and Kasheverov, S. I. GISTOLOGICHESKIE NABLIUDENIIA NAD TRANSPLANTIROVANNOI NADKHRIASHCHNITSEI. [HISTOLOGICAL OBSERVATIONS OF TRANSPLANTED CARTILAGE] Biull. eksp. biol. med., 1945, 19: 22-23.

2456
De Bruyn, P. P. H. BONE FORMATION BY FRESH AND FROZEN TRANSPLANTS OF BONE, BONE MARROW AND PERIOSTEUM. Anat. Rec., 1947, 99: 641. An abstract.

2457
De Marchi, E. SUL POTERE OSTEOGENICO DELL'EPIFISI EMBRIONALE (RICERCHE SPERIMENTALI). NOTA PRIMA. Chir. org. movim., 1936, 21: 460-468. 25 refs.

2458
De Marchi, E. SUL POTERE OSTEOGENICO DELL'EPIFISI EMBRIONALE. RICERCHE SPERIMENTALI. Chir. org. movim., 1938, 23: 310-316. 28 refs.

2459
Dolfini, G. "SUI TRAPIANTI DI MIDOLLO OSSEO IN ANIMALI ANEMIZZATI." Atti Ist. venet. sc., 1930-1931, 90: 1107-1132. 7 pl. 62 refs.

2460
Engström, H. and Orell, S. ÜBER REGENERATION RINGS UM SUBCUTANE KNOCHENIMPLANTATE. Zschr. mikr. anat. Forsch., 1943, 53: 283-318. 68 refs.

2461
Fang, H. C. and Miltner, L. J. COMPARISON OF OSTEOGENIC POWER OF PERIOSTEAL TRANSPLANTS FROM RIB AND TIBIA. Proc. Soc. Exp. Biol., N. Y., 1933, 31: 386-388. 5 refs.

2462
Fell, H. B. and Canti, R. G. EXPERIMENTS ON THE DEVELOPMENT IN VITRO OF THE AVIAN KNEE-JOINT. Proc. R. Soc., Ser. B, Biol. Sc., Lond., 1934-35, 116: 316-351. 4 pl. 12 refs.

2463
Fogliati, E. STUDI SPERIMENTALI SULL'OSTEOGENESI ETEROTOPICA. OSTEOGENESI ETEROTOPICA DA INNESTO DI MUCOSA DELLE VIE ORINARIE. NOTA SECONDA. Chir. org. movim., 1950, 34: 132-140. 21 refs. Abstracted in: Excerpta med., Sect. 5, 1951, 4: No. 892. In adult dogs histological studies were made of heterotopic osteogenesis induced by autogenous urinary tract mucosa transplants.

2464
Fogliati, E. and Enria, G. STUDIO ISTOCHIMICO DEL MECCANISMO FOSFATASICO NELL'OSSIFICAZIONE ETEROTOPICA DA INNESTO DI EPITELIO DELLE VIE ORINARIE. Chir. org. movim., 1951, 36: 25-35. 20 refs. Abstracted in: Excerpta med., Sect. 5, 1952, 5: No. 2905. In dogs studies were made of phosphatase reaction induced by autogenous urinary tract mucosa transplants in the musculature.

2465
Gordon, S. D. and Warren, R. F. HOMOGENOUS FETAL CARTILAGE GRAFTS TO BONE; AN EXPERIMENTAL STUDY. Ann. Surg., 1948, 127: 90-97. 9 refs.

2466
Grugni, C. and Prina, C. ULTERIORI RICERCHE SULL'OSSIFICAZIONE SPERIMENTALE NELLA LINGUA. Med. sper., Tor., 1952, 23: 225-238. 18 refs. Abstracted in: Excerpta med., Sect. 5, 1953, 6: No. 3172.

2467
Ham, A. W. and Gordon, S. THE ORIGIN OF BONE THAT FORMS IN ASSOCIATION WITH CANCELLOUS CHIPS TRANSPLANTED INTO MUSCLE. Brit. J. Plastic Surg., 1952, 5: 154-160. 8 refs. Abstracted in: Excerpta med., Sect. 9, 1953, 7: No. 3278; Internat. Abstr., 1953, 97: 90. A study was made with 5 dogs. It was concluded that new bone is formed from the living transplanted bone cells and not by metaplasia.

2468
Hancox, N. M. OSTEOGENESIS AROUND MULTIPLE FRAGMENTS OF CHICK EMBRYO BONE GRAFTED TO DEVELOPING CHICK EMBRYO CHORIOALLANTOIS. J. Physiol., Lond., 1948, 107: 513-517. 2 pl. 15 refs. Abstracted in: Excerpta med., Sect. 1, 1949, 3: No. 1111; Biol. Abstr., Balt., 1949, 23: No. 11140.

2469
Hancox, N. M. THE SURVIVAL OF TRANSPLANTED EMBRYO BONE GRAFTED TO CHORIOALLANTOIC MEMBRANE, AND SUBSEQUENT OSTEOGENESIS. J. Physiol., Lond., 1947, 106: 279-285. pl. 27 refs. Abstracted in: Excerpta med., Sect. 2, 1948, 1: No. 2733; Biol. Abstr., Balt., 1948, 22: No. 9155.

2470
Hass, S. L. FURTHER OBSERVATION ON THE TRANSPLANTATION OF THE EPIPHYSEAL CARTILAGE PLATE. Internat. Abstr. Surg., 1931, 52: 958-963. 10 refs. The epiphyseal cartilage plate loses its function of producing length growth after transplantation.

2471
Hegemann, G. UNTERSUCHUNGEN ZUR FRAGE DER KNOCHENNEUBILDUNG DURCH EINEN ZELLFREIEN, STOFFLICHEN, SPEZIFISCH-OSTEOGENEN FAKTOR. Chirurg, 1951, 22: 25-28. 38 refs. In rabbits implants were made of fresh bone, muscle and urinary tract enclosed in filterbags (some of coarse "Cellafilter") through which fluids, salts, etc. could pass but which did not permit the passage of cells. No new bone formation occurred, disproving the theory of a specific osteogenetic substance in the implanted tissue.

2472
Hellstadius, A. "BONE CHIP" GRAFTS IN DEFECTS IN THE LONG BONES. A STUDY ON THE TRANSPLANTATION OF BONE CHIPS FROM COMPACT AND FROM SPONGY SUBSTANCE IN DEFECTS IN THE LONG BONES AND ON THE ROLE PLAYED BY THE PERIOSTEUM AND ENDOSTEUM IN BONE GRAFTS FROM COMPACT SUBSTANCE. Acta chir. scand., 1944, 90: 317-328. 15 refs. Abstracted in: Biol. Abstr., Balt., 1947, 21: No. 8618. In experiments with rabbits, new bone occurred more slowly with the use of spongy substance than with compact substance. The retaining of periosteum and endosteum on grafts promoted formation of new bone. Matti's opinion that bone cells in the spongy grafts survive, whereas those in compact grafts do not was not confirmed.

2473
Hellstadius, A. ON THE ABILITY OF BONE TISSUE (INCLUDING "OS NOVUM") TO SURVIVE IN PEDICLED BONE GRAFTS. Acta chir. scand., 1942, 86: 85-109. 4 pl. 31 refs. A study carried out on rabbits. New-bone formation in pedicled grafts was not more abundant than in free ones. Experiments with transplantation of os novum showed that the new-formed osteoid tissue, if sufficiently young, survives not only in pedicled but probably partially in free grafts.

2474
Huggins, C. B., McCarroll, H. R. and Blocksom, B. H., Jr. EXPERIMENTS ON THE THEORY OF OSTEOGENESIS. THE INFLUENCE OF LOCAL CALCIUM DEPOSITS ON OSSIFICATION; THE OSTEOGENIC STIMULUS OF EPITHELIUM. Arch. Surg., 1936, 32: 915-931. 45 refs. Abstracted in: Chem. Abstr., 1936, 30: 8341^5; Biol. Abstr., Balt., 1937, 11: No. 17085.

2475
Hutchison, J. OBSERVATIONS ON BONE TRANSPLANTS IN THE ANTERIOR CHAMBER OF THE EYE. Glasgow M. J., 1949, 30: 357-363. 9 refs. "The homotransplants do not survive but become sequestra. ... Autotransplants survive. In the early stages there is some loss of vitality in the autotransplants, but they later revive. This revival appears to be due not only to the activity of the bone cells of the transplant but to invading host cells which become converted into and function as osteoblasts."

2476
Imbert, L. RECHERCHES HISTOLOGIQUES SUR L'ÉVOLUTION DE LA GREFFE OSSEUSE. Ann. anat. path., Par., 1930, 7: 291-315. 22 refs. Abstracted in: Biol. Abstr., Balt., 1932, 6: No. 17312.

2477
Imbert, R. SUR LA VIE ALTERNANTE DES TISSUS. Paris méd., 1933, 87: 267-270.

2478
Kalambokas, A. ÜBER DAS VERHALTEN AUTOPLASTISCH TRANSPLANTIERTER SPONGIOSA IM TIERVERSUCH. 67p. Wurzb., K. Triltsch, 1938. (Inaug.-Diss.-Würzburg). 154 refs.

2479
Kiehn, C. L., Cebul, F., Berg, M., Gutentag, J. and Glover, D. M. A STUDY OF THE VASCULARIZATION OF EXPERIMENTAL BONE GRAFTS BY MEANS OF RADIOACTIVE PHOSPHORUS AND THE TRANSPARENT CHAMBER. Ann. Surg., 1952, 136: 404-411. Discussion: p. 41. pl. 8 refs. Abstracted in: Excerpta med., Sect. 9, 1953, 7: No. 2444.

2480
Kind, H. STUDIEN ZUR FRAGE DER OSTEOLYSE. HISTOLOGISCHE UND CHEMISCHE UNTERSUCHUNGEN AN EXPERIMENTELLEN FRAKTUREN UND TRANSPLANTATEN. Beitr. path. Anat., 1951, 111: 283-312. 38 refs. Abstracted in: Excerpta med., Sect. 5, 1952, 5: No. 670.

2481
Kirby-Smith, H. T. BONE GROWTH STUDIES. A MINIATURE BONE FRACTURE OBSERVED MICROSCOPICALLY IN A TRANSPARENT CHAMBER INTRODUCED INTO THE RABBIT'S EAR. Am. J. Anat., 1933, 53: 377-402. 17 refs. Abstracted in: Biol. Abstr., Balt., 1934, 8: No. 16553.

2482
Lacroix, P. CONTRIBUTION À L'ÉTUDE DES GREFFES DE MOELLE OSSEUSE. Arch. biol., Par., 1949, 60: 15-23. 20 refs.

2483
Lacroix, P. LE DÉTERMINISME GÉNERAL DE L'OSSIFICATION ENDOCHONDRALE. Bull. Acad. méd. Belgique, 1945, 10: 517-532. 4 pl. 12 refs. Abstracted in: Excerpta med., Sect. 1, 1948, 2: No. 371.

2484
Lacroix, P. LES GREFFES DE TISSU OSSEUX. ÉTUDE HISTOPHYSIOLOGIQUE. Arch. biol., Par., 1949, 60: 2-13. 35 refs.

2485
Lacroix, P. ON THE ORIGIN OF THE DIAPHYSIS. Anat. Rec., 1945, 92: 433-438. pl. 9 refs. Abstracted in: Biol. Abstr., Balt., 1946, 20: No. 869. "In rabbits, the central part of the growth cartilage of the distal radius or of the rib has been grafted into the brain, the medullary cavity of the tibia and under the kidney capsule. Now, under these circumstances, a bony ring identical to that of the ossification groove appears around the cartilage. Consequently it may be said that the formation of the perichondrial ring and of the primitive diaphysis must be considered as an induction phenomenon directed by the growing cartilage." - Biol. Abstr.

2486
Lacroix, P. ORGANIZERS AND THE GROWTH OF BONE. J. Bone Surg., 1947, 29: 292-296. 7 refs. Abstracted in: Excerpta med., Sect. 1, 1949, 3: No. 304.

2487
Lacroix, P. RECHERCHES EXPÉRIMENTALES SUR L'OSTÉOGÉNÈSE PÉRIOSTIQUE. Arch. biol., Par., 1946, 57: 99-136. 41 refs. Abstracted in: Biol. Abstr., Balt., 1947, 21: No. 8895.

2488
Lacroix, P. LE RÔLE DU CAL CARTILAGINEUX DANS LA RÉPARATION DES FRACTURES. Acta chir. belg., 1953, 52: 877-883. 4 pl. 6 refs.

2489
Leriche, R. RECHERCHES EXPÉRIMENTALES SUR L'OSTEOGÉNÈSE. Bull. Soc. nat. chir., Par., 1934, 60: 1184-1191.

2490
Levander, G. BONE REPAIR CAPACITY OF THE PERIOSTEUM. Acta chir. scand., 1940, 84: 269. An abstract.

2491
Levander, G. L'INDUCTION DANS LA RÉGÉNÉRATION TISSULAIRE. Presse méd., 1951, 59: 295-297. 27 refs. Abstracted in: Excerpta med., Sect. 5, 1952, 5: No. 1354. Experiments are described in which bone tissue transplantation into soft parts was followed by new bone formation. Similar results were also obtained by injecting alcoholic bone extracts into muscle. The new bone was observed to arise from undifferentiated mesenchymal tissue upon stimulation by a specific inductive substance released by the graft or the bone extract. Certain solubility characteristics of the inductive substance indicated its possible relation to the lipoid or steroid groups. The article contains a discussion of the work of other investigators.

2492
Levander, G. OM BENNYBILDNINGEN VID BENTRANSPLANTATION. Förh. Nord. kir. fören., 1933, 19.meet., 48-52.

TISSUE TRANSPLANTS (Continued)

2493
Levander, G. OM BENREGENERATION. FORMULERING AV EN FRÅGESTÄLLNING UR KAUSAL OSTEOGENETISK SYNPUNKT. Nord. med., 1941, 9: 843-850. 11 refs. English summary.

2494
Levander, G. ON TISSUE INDUCTION. Acta path. microb. scand., 1949, 26: 113-141. 21 refs. Abstracted in: Biol. Abstr., Balt., 1949, 23: No. 21302; Excerpta med., Sect. 5, 1950, 3: No. 1051. Studies in osteogenesis after bone implantation indicated that new bone is formed from differentiation of mesenchymal tissue on implant site upon stimulation by a specific substance released from bone and marrow grafts. Confirmation of such a substance is seen in the osteogenesis provoked by injection of alcoholic cell-free bone extract.

2495
Levander, G. ON TISSUE INDUCTION IN POST-FOETAL OSTEOGENESIS. Exp. Cell Res., 1949, Suppl. 1, 558-559. 3 refs. From experiments with bone implants in soft tissue it was concluded that bone regeneration does not result from proliferation of pre-existing bone cells but from the formation of an undifferentiated mesenchymal blastema and a specific diffusible substance released by the necrotic transplant. In other experiments, in which alcoholic extracts were prepared from bone tissue and injected into muscles, bone or cartilage formation frequently followed.

2496
Levander, G. A STUDY OF BONE REGENERATION. Surg. Gyn. Obst., 1938, 67: 705-714. 5 refs. From experiments with autogenous grafts and from others with injections of alcoholic extracts of bone tissue; it was concluded that new bone is formed from the mesenchymal tissue upon stimulation of this tissue by some specific substance liberated from the graft or contained in the injection extract. The article is preceded by a review of current theories.

2497
Levander, G. TISSUE INDUCTION. Nature, Lond., 1945, 155: 148-149. 8 refs.

2498
Levander, G. ÜBER DIE KNOCHENREGENERATORISCHE FÄHIGKEIT DES PERIOSTS. Acta chir. scand., 1939-40, 83: 1-26. pl. 17 refs. English and French summaries. Abstracted in: Biol. Abstr., Balt., 1946, 20: No. 17629. The power of the periosteum to regenerate bone was tested in experimental subcutaneous periosteal transplants in rabbits of different ages. It was concluded that new bone is formed only from the rich mesenchymal layer of the periosteum of growing animals. The article contains a discussion of the literature and denies the validity of the theory of Lexer and Axhausen.

2499
Levikova, A. M. NABLIUDENIE NAD EKSPERIMENTAL'NYM OSTEOGENEZOM U KROLIKA. [OBSERVATIONS ON EXPERIMENTAL OSTEOGENESIS IN THE RABBIT] Doklady Akad. nauk SSSR, 1950, 71: 149-152. Data on experiments with transplanted chips of tibia. Proliferation occurred on the 3rd day, a thickening of the periosteum on the 5th and the first cartilaginous elements were replaced by osseous tissue on 20th day. In all cases the transplanted chips were resorbed.

2500
Lima, C. OSSIFICAÇÃO PERIÓSTICA EXPERIMENTAL. Med. contemp., Lisb., 1949, 67: 317.

2501
Lorenzi, B. OSTEOGENESI DA AUTOINNESTI DI MUCOSE VIVENTI. Sperimentale, 1946, 98: 170-186. 27 refs. Abstracted in: Excerpta med., Sect. 9, 1949, 3: No. 4083.

2502
Lorenzi, B. OSTEOGENESI SPERIMENTALE E DOTTRINE DELL'OSSIFICAZIONE. Sperimentale, 1948, 99: 17-30. 34 refs.

2503
Lorenzi, B. TENTATIVI DI OSTEOGENESI SPERIMENTALE CON OMOINNESTI DI MUCOSE VIVENTI. Sperimentale, 1946, 98: 162-169. 6 refs.

2504
McGaw, W. H. STUDIES IN THE REPAIR OF BONE. Proc. Soc. Exp. Biol., N. Y., 1934, 31: 860-863. Abstracted in: Biol. Abstr., Balt., 1935, 9: No. 19714.

2505
McGaw, W. H. and Harbin, M. THE ROLE OF BONE MARROW AND ENDOSTEUM IN BONE REGENERATION: AN EXPERIMENTAL STUDY OF BONE MARROW AND ENDOSTEAL TRANSPLANTS. J. Bone Surg., 1934, 16: 816-821. 16 refs. "Experiments on 6 dogs show that bone marrow and endosteum play a very active role in the formation of callus and new bone. Free bone marrow and endosteal transplants will regenerate and bridge extra-periosteal fibular bone defects."

2506
Matti, H. ÜBER FREIE TRANSPLANTATION VON KNOCHENSPONGIOSA. Arch. klin. Chir., 1931, 168: 236-258. 15 refs. Abstracted in: Biol. Abstr., Balt., 1934, 8: No. 9602.

2507
May, H. THE REGENERATION OF BONE TRANSPLANTS. Ann. Surg., 1937, 106: 441-453. 31 refs. Experiments with entire radii of dogs were undertaken to investigate thoroughly the establishment of the blood supply of bone transplant and to determine the relation between vascularization and regeneration. It was concluded that the periosteum is the only reliable factor in regeneration when an entire bone with its medullary cavity closed, is transplanted.

2508
Migicovsky, B. B. and Nielson, A. M. BONE IMPLANTATION AS A MEANS OF STUDYING VITAMIN D ACTION. Science, 1952, 115: 354-355. 5 refs. Abstracted in: Biol. Abstr., Balt., 1952, 26: No. 34201; Chem. Abstr., 1952, 46: 5679h. "Previous in vitro investigations indicate that vitamin D exerts its influence on the environment from which bone receives its mineral. The present investigation tests the above observations with in vivo studies using implanted tibiae on 2-week-old rachitic and non-rachitic chicks. This implantation technic could be advantageously employed in the study of the calcification mechanism." - Biol. Abstr.

2509
Mosiman, R. S. A STUDY OF BONE GROWTH. Surg. Forum, (1950) 1951, 424-427.

2510
Nasonov, N. V. FORMOOBRAZOVANIE PRI VLOZHENII POD KOZHU VYCUSHENNOI REGENERATSIONNOI POCHKI U AKSOLOTLIA. [FORMATIONS PRODUCED IN THE AXOLOTL BY THE SUBCUTANEOUS INSERTION OF A DESICCATED REGENERATION BUD] Doklady Akad. nauk SSSR, 1934, 2: 325-328. English translation: p. 328-331.

2511
Orell, S. BONE REGENERATION AND TRANSFORMATION IN OSTEOSYNTHESIS OF VERTEBRAE. J. internat. chir., Brux., 1951, 11: 1-19. 14 refs. Abstracted in: Excerpta med., Sect. 1, 1952, 6: No. 1311. New bone formed by sub-periosteal tibial implant is used as a transplant in vertebral osteosynthesis. Histological processes, methods and results are described.

2512
Orell, S. PRINCIPLES AND EXPERIENCES AT THE IMPLANTATION OF OS PURUM, OS NOVUM AND BONE GRANULATE. Acta orthop. belg., 1952, 18: 162-174. 16 refs. Abstracted in: Internat. Abstr. Surg., 1953, 96: 288-289. By implantation in vivo in man, the author has shown that normal formation of new bone occurs in the interstices between bone fragments and that regeneration and absorption of bone is probably a surface effect. Finely divided bone seems to be the best choice for grafting because of its small interstices. Grafts firmly fixed under pressure facilitate new-bone formation.

2513
Orell, S. STUDIEN ÜBER KNOCHENIMPLANTATION UND KNOCHENNEUBILDUNG, IMPLANTATION VON "OS PURUM" SOWIE TRANSPLANTATION VON "OS NOVUM". Acta chir. scand., 1934, 74: Suppl. 31. 274p. pl. 171 refs. A comprehensive study of bone regeneration through experimental and clinical implantation and transplantation. The study is preceded by a review of the principal theories, 1735-1933.

2514
Passarelli, L. and Prior, C. CONTRIBUTO SPERIMENTALE ALLO STUDIO DELLA OSSIFICAZIONE ETEROTOPICA DELLA SURRENALI. Riv. anat. pat., 1952, 5: 532-540. 1 ref. Abstracted in: Excerpta med., Sect. 5, 1953, 6: No. 1695. In 5 dogs bone marrow was transplanted to the adrenals. Formation of bone trabeculae was observed near the necrosing implant in 3 of the animals.

2515
Pfeiffer, C. A. DEVELOPMENT OF BONE FROM TRANSPLANTED MARROW IN MICE. Anat. Rec., 1948, 102: 225-243. pl. 32 refs. Abstracted in: Excerpta med., Sect. 1, 1949, 3: No. 1198; Biol. Abstr., Balt., 1949, 23: No. 18795.

2516
Ray, R. D., Degge, J., Gloyd, P. and Mooney, G. BONE REGENERATION. AN EXPERIMENTAL STUDY OF BONE-GRAFTING MATERIALS. J. Bone Surg., 1952, 34A: 638-647. 29 refs. Abstracted in: Excerpta med., Sect. 9, 1953, 7: No. 3279; Biol. Abstr., Balt., 1953, 27: No. 1107.

2517
Röhlich, K. BILDUNG NEUER KNOCHENSUBSTANZ IN ABGETÖTETEN KNOCHENTRANSPLANTATEN. Zschr. mikr. anat. Forsch., 1941, 50: 132-145. 13 refs.

2518
Röhlich, K. BLUTZELLENBILDUNG IN ABGETÖTETEN KNOCHENTRANSPLANTATEN. Zschr. mikr. anat. Forsch., 1941, 49: 616-625. 1 ref.

2519
Röhlich, K. V. ÜBER DIE TRANSPLANTATION PERIOST- UND MARKLOSER KNOCHENSTÜCKE. Zschr. mikr. anat. Forsch., 1942, 51: 636-653. 12 refs.

2520
Rollo, S. PERIOSTIO, MEMBRANE CONNETTIVALI E SALI DI CALCIO IN RELAZIONE ALL'OSTEOGENESI. (RICERCHE SPERIMENTALI). Riv. biol., 1930, 12: Fasc. 3-6, 27-36. 14 refs. In dogs experiments to induce new bone formation by implantation of periosteal tissue alone and in combination with other substances were unsuccessful.

2521
Rollo, S. SULLA VOLUTA IMPORTANZA DEL CALCIO NELLA PRODUZIONE ETEROTOPICA DI OSSO E DI MIDOLLO. (RICERCHE SPERIMENTALI). Riv. biol., 1930, 12: Fasc. 3-6, 17-26. 3 refs. In dogs and rabbits experiments to induce osteogenesis by injection of an aqueous suspension of calcium glycerophosphate and by implantation of spongy bone were unsuccessful.

2522
*Rutishauser, E. GREFFES OSSEUSES. J. internat. chir., Brux., 1953, 13: 320-327.

2523
Sandison, J. C. A METHOD FOR THE MICROSCOPIC STUDY OF THE GROWTH OF TRANSPLANTED BONE IN THE TRANSPARENT CHAMBER OF THE RABBIT'S EAR. Anat. Rec., 1928, 40: 41-49.

2524
Silberberg, M. and Silberberg, R. EFFECTS OF ANTERIOR PITUITARY IMPLANTS AND EXTRACTS ON EPIPHYSES AND JOINTS OF IMMATURE FEMALE GUINEA PIGS. Arch. Path., Chic., 1938, 26: 1208-1225. 12 refs. Abstracted in: Biol. Abstr., Balt., 1939, 13: No. 5646. Data from this study would indicate that "...the growth of cartilage in all possibility is a direct response to the stimulation exerted by a substance which is present in the anterior lobe of the pituitary gland rather than a regenerative process caused by degenerative changes."

2525
Slessor, A. and Wyburn, G. M. BONE FORMATION. J. Anat., Lond., 1947, 81: 393-394. An abstract. Following implantation of bone homografts in subcutaneous tissues of guinea pigs and into the flexor muscles of the hind limbs of rabbits, there was no evidence of bone formation in host tissue in either case.

2526
Steinman, C. THE HEALING OF DRILL-HOLE DEFECTS IN THE LONG BONES OF ADULT RABBITS, ESPECIALLY FOLLOWING THE USE OF EMBRYONIC BONE TRANSPLANTS. Anat. Rec., 1947, 99: 427-446. 2 pl. 22 refs. Abstracted in: Excerpta med., Sect. 1, 1949, 3: No. 240.

2527
*Studitskii, A. N. [COMPONENTS OF THE BONE-FORMING PROCESS AND CORRELATING THEM WITH EXPERIMENTAL DATA] Tr. Gistol. konf., Moskva, (1934) 1935, 1.Conf., 178-181.

2528
Studitskii, A. N. EKSPERIMENTAL'NYE ISSLEDOVANIIA PO GISTOGENEZU KOSTNOI TKANI; O ZNACHENII VZAIMODEISTVIIA KHRIASHCHEVOI TKANI I NADKOSTNITSY PO DANNYM KUL'TUR NA ALLANTOISE. [EXPERIMENTAL STUDY ON HISTOGENESIS OF BONE TISSUE; ROLE OF THE INTERRELATIONSHIP OF CARTILAGINOUS TISSUE AND OF PERIOSTIUM ACCORDING TO DATA OF ALLONTOIS CULTURE] Biol. J. Moskva, 1933, 2: 531-543. 2 pl. 25 refs. German summary.

2529
Studitskii, A. N. EXPERIMENTELLE UNTERSUCHUNGEN ÜBER DIE HISTOGENESE DES KNOCHENGEWEBES. II. ÜBER DIE BEDEUTUNG DER WECHSELWIRKUNG DES KNORPELGEWEBES UND DES PERIOSTES NACH DEN ERGEBNISSEN DER KULTUREN IN DER ALLANTOIS. Zschr. Zellforsch., 1934, 20: 636-657. 28 refs.

TISSUE TRANSPLANTS (Continued)

2530
Studitskii, A. N. EXPERIMENTELLE UNTERSUCHUNGEN ÜBER DIE HISTOGENESE DES KNOCHENGEWEBES. III. ÜBER DIE BEDINGUNGEN DER DIFFERENZIERUNG DES KNOCHENGEWEBES DES MENSCHLICHEN EMBRYOS IN DER ALLANTOIS. Zschr. Zellforsch., 1934, 20: 658-676. 4 refs.

2531
*Studitskii, A. N. EKSPERIMENTAL'NYE ISSLEDOVANIIA PO KOSTNOI TKANI. IV. O ZNACHENII KOLLAGENOVYKH VOLOKON V PROTSESSE OSTEOGENEZA PO DANNYM KUL'TUR NA ALLANTOISE. [EXPERIMENTAL STUDY OF OSSEOUS TISSUE. IV. THE COLLAGENOUS FIBERS IN OSTEOGENESIS SEEN IN ALLANTOIC CULTURES] Arch. russ. anat., 1934 13: No. 1, 27-40. pl. German summary: p. 188-198. Abstracted in: Biol. Abstr., Balt., 1936, 10: No. 4493.

2532
*Studitskii, A. N. [EXPERIMENTAL INVESTIGATIONS ON THE HISTOGENESIS OF BONE TISSUE; COMBINED CULTURE OF SKELETOGENOUS TISSUE IN VITRO AND ON ALLANTOIS] Arb. Inst. Exp. Morphogen., Moskva, 1934, 2: 83-101.

2533
*Studitskii, A. N. EKSPERIMENTAL'NYE ISSLEDOVANIIA PO GISTOGENEZU KOSTNOI TKANI. VI. O MEKHANIZME FORMOOBRAZOVATEL'NYKH PROTSESSOV V EMBRIONAL'NOM SKELETE. [EXPERIMENTAL STUDIES ON HISTOGENESIS OF OSSEOUS TISSUES. VI. MECHANISM OF MORPHOGENESIS IN EMBRYONIC SKELETON] Arch. russ. anat., 1935, 14: No. 2, 226-250. German summary: p. 310-317. Abstracted in: Biol. Abstr., Balt., 1937, 11: No. 2030.

2534
Studitskii, A. N. EKSPERIMENTAL'NYE ISSLEDOVANIIA PO HISTOGENEZU KOSTNOI TKANI; O ROSTE ZACHATKOV SKELETA KURKOROTKONOZHEK NA KHORIOALLANTOISE. [EXPERIMENTAL STUDY ON HISTOGENESIS OF THE OSSEOUS TISSUE ON THE GROWTH OF THE CHORIOALLANTOIC] Izv. Akad. nauk SSSR, ser. biol., 1939, 457-468. 10 refs. French summary.

2535
Studitskii, A. N. GISTOMORFOGENETICHESKIE PROTSESSY V KOSTNOI TKANI PRI DIFFERENTSIROVKE NA KHORIOALLANTOISE V USLOVIIAKH RASTIAZHENIIA. [HISTOMORPHOLOGIC PROCESSES OF THE BONE TISSUE OSTEOGENESIS OBSERVED DURING DIFFERENTIATION ON THE CHORION ALLANTOIS IN STRETCHING CONDITIONS] C. rend. Acad. sc. URSS, 1948, 61: 403-405. 4 refs. Experiments demonstrating the importance of the distension factor in development of the structure of osseous tissue in the chick embryo.

2536
Studitskii, A. N. O POTENTSIIAKH NADKOSTNITSY PERVICHNOGO I VTORICHNOGO OKOSTENENIIA PO DANNYM KUL'TUR NA ALLANTOISE. [POTENCIES POSSESSED BY THE PERIOSTEUM OF PRIMARY AND SECONDARY OSSIFICATION ACCORDING TO THE DATA OBTAINED BY THE CULTIVATION OF PERIOSTEAL GRAFTS ON THE ALLANTOIS] C. rend. Acad sc. URSS, 1934, 1: 74-79. In Russian and English. Abstracted in: Biol. Abstr., Balt., 1936, 10: No. 19673.

2537
Studitskii, A. O ZNACHENII KOLLAGENOVYKH VOLOKON V PROTSESSE OSTEOGENEZA PO DANNYM KUL'TUR NA ALLANTOISE. [THE ROLE OF COLLAGENIC FIBRES IN THE PROCESS OF OSTEOGENESIS ACCORDING TO DATA OBTAINED FROM GRAFTS TRANSPLANTED ON TO THE ALLANTOIS] C. rend. Acad. sc., URSS, 1934, 3: 131-136. 2 refs. English summary. Abstracted in: Biol. Abstr., Balt., 1936, 10: No. 1975.

2538
Studitskii, A. N. OB USLOVIIAKH DIFFERENTSIROVKI KOSTNOI TKANI CHELOVECHESKOGO ZARODYSHA V KUL'TURAKH NA ALLANTOISE. ON THE CONDITIONS OF THE DIFFERENTIATION OF THE OSSEOUS TISSUE OF A HUMAN EMBRYO IN GRAFTS ON THE ALLANTOIS. C. rend. Acad. sc. URSS, 1934, 1: 267-272. In Russian and English. Abstracted in: Biol. Abstr., Balt., 1936, 10: No. 19675. Grafts of periosteum from the frontal bone and the long bones and grafts of joints (the core of cartilage isolated from the perichondrium of the phalanx and wrapped in periosteum) were used in these experiments. Results indicate that the chick allantois is a most favorable medium for development of human osseous tissue. Chick cells were depressed.

2539
Studitskii, A. N ROL' VZAIMODEISTVIIA KHRIASHCHEVOI TKANI I NADKOSTNITSY V ENDOKHONDRAL'NOM PROTSESSE PODANNYM KUL'TUR NA ALLANTOISE. THE INTERACTION OF CARTILAGINOUS TISSUE AND THE PERIOSTEUM AND ITS ROLE IN THE ENDOCHONDRAL PROCESS ACCORDING TO DATA OBTAINED FROM GRAFTS TRANSPLANTED TO THE ALLANTOIS. C. rend. Acad. sc., URSS, 1934, 1: 199 204. In Russian and English. Abstracted in: Biol. Abstr., Balt., 1936, 10: No. 19674.

2540
Studitskii, A. N. ÜBER DAS WACHSTUM DES KNOCHENGEWEBES UND PERIOSTE IN VITRO UND AUF DER ALLANTOIS. Arch. exper. Zellforsch., 1932, 13: 390-406. 12 refs.

2541
*Studitskii, A. N. UEBER DIE BEDINGUNGEN DER DIFFERENZIERUNG DES KNOCHENGEWEBES DES MENSCHLICHEN EMBRYOS IN DER ALLANTOIS. Zschr. Zellforsch., 1933-1934, 20: 658-676.

2542
Urist, M. R. and McLean, F. C. THE LOCAL PHYSIOLOGY OF BONE REPAIR. WITH PARTICULAR REFERENCE TO THE PROCESS OF NEW BONE FORMATION BY INDUCTION. Am. J. Surg., 1953, 85: 444-449. 14 refs.

2543
Urist, M. R. and McLean, F. C. OSTEOGENETIC POTENCY AND NEW-BONE FORMATION BY INDUCTION IN TRANSPLANTS TO THE ANTERIOR CHAMBER OF THE EYE. J. Bone Surg., 1952, 34A: 443-476. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 1109; Brit. Abstr., Sect. AIII, 1953, p. 628. The osteogenetic activity of 250 samples of various kinds of musculoskeletal tissues transferred to the anterior chamber of the eye in rats was studied. Findings seemed to indicate that new-bone formation, instead of depending solely upon either the mechanism of survival and proliferation of the transplanted cells or upon that of induction of the cells of the host, may also occur through a combination of the two. The literature is reviewed.

2544
Urist, M. R. and McLean, F. C. OSTEOGENETIC POTENCY AND OSTEOGENETIC INDUCTOR SUBSTANCES OF PERIOSTEUM, BONE MARROW, BONE GRAFTS, FRACTURE CALLUS, AND HYALINE CARTILAGE TRANSFERRED TO THE ANTERIOR CHAMBER OF THE EYE. Tr. Conf. Metab. Interrelat., 1951, 3.Conf., 55-89. Conference discussion: p. 80-89. 10 refs.

2545
Vainio, S. OBSERVATIONS ON THE REGENERATION OF AN AUTOGENOUS TRANSPLANT OF THE BONE. AN EXPERIMENTAL INVESTIGATION. Acta chir. scand., 1950, 100: 86-109. 31 refs. Abstracted in: Excerpta med., Sect 5, 1951, 4: No. 1581; Biol. Abstr., Balt., 1951, 25: No. 13980.

TISSUE TRANSPLANTS (Continued)

2546
Wilde, C. E. STUDIES ON THE ORGANOGENESIS IN VITRO OF THE URODELE LIMB-BUD. J. Morph., 1950, 86: 73-113. 5 pl. 49 refs. Studies to determine: 1) Variations in capacity of the limb-bud primordium for self-determination with its state of development at time of explantation; 2) Time sequence of differentiation of component structures of limb-bud; 3) Relation of size of tissue mass explanted to amount of differentiation expressed in explant.

2547
Willis, R. A. THE GROWTH OF EMBRYO BONES TRANSPLANTED WHOLE IN THE RAT'S BRAIN. Proc. R. Soc., Lond., Ser. B, 1936, 120: 496-498. pl. 2 refs. Abstracted in: Biol. Abstr., Balt., 1937, 11: No. 14868.

2548
Zanaboni, A. and Parola, P. CONTRIBUTO ALL'OSTEOGENESI SPERIMENTALE ETEROTOPICA MEDIANTE INNESTI DI LEMBI OMOPLASTICI DI ARTERIA ELASTICA. Osp. maggiore, Milano, 1950, 38: 107-112. 20 refs. Abstracted in: Excerpta med., Sect. 9, 1951, 5: No. 7632

See:

97	198	447	463	534
671	755	756	797	1082
1175	1190	1222	1366	1367
1550	1763	1808	1866	2065
2244	2294	2295	2566	2730
2793	2794			

TISSUE EXTRACTS

2549
Anqersten, S. EXPERIMENTELLE UNTERSUCHUNGEN UBER DIE OSTEOGENESE UND DIE BIOCHEMIE DES FRACTURCALLUS. Acta chir. scand, 1940, 84: Suppl. 60. 181p. Bibliography: p. 172-181. Abstracted in: Biol. Abstr., Balt., 1946, 20: No. 17293; Chem. Abstr., 1941, 35: 2586[6]. Experiments on rabbits are described in which osteogenesis was promoted in muscle by injection of alcohol bone extracts and other experiments in which the biochemical processes of ossification were studied in the fracture callus. The work is in two parts. Each part contains a review and discussion of the pertinent literature.

2550
Annersten, S. UEBER DIE OSTEOGENESE BEI DER FRAKTURHEILUNG. Chirurg., 1941, 13: 76-82. 31 refs. On the theory that the processes of osteogenesis in fracture healing can be explained through a study of the mechanisms of bone regeneration, or of bone formation in the soft tissues, the following experiment was conducted: In rabbits alcohol and bone extracts were injected into muscles. Studies of the new bone or cartilage formation indicated that the injected substances released a mechanism which promoted differentiation of non-specific cells. The article is preceded by a review of the literature.

2551
Axhausen, W. ZUR KNOCHENNEUBILDUNG IM MUSKEL NACH INJEKTION ALKOHOLISCHER KNOCHENEXTRAKTE. Zbl. Chir., 1951, 76: 402-404. 17 refs. Abstracted in: Excerpta med., Sect. 9, 1951, 5: No. 6842.

2552
Bertelsen, A. EXPERIMENTAL INVESTIGATIONS INTO POST-FOETAL OSTEOGENESIS. Acta orthop. scand., 1944, 15: 139-181. Approx. 120 refs. In this survey of the literature on causal genesis of post-foetal ossification, the osteoblast and osteocyte theories, the doctrine of metaplasy and the dualistic conception are discussed. The author describes his own investigations, which confirm the extraction experiments of Levander and Annersten. He also notes his additional finding that marrow extracts are more constantly active than extracts of other bone components.

2553
*Bucher, O. and Weil, J. T. L'INFLUENCE D'UN EXTRAIT OSSEUX (OSSOPAN) SUR LA CONSOLIDATION DE FRACTURES IN VITRO. Experientia, Basel, 1951, 7: 38-40. Abstracted in: Biol. Abstr., Balt., 1952, 26: No. 8850; Excerpta med., Sect. 9, 1951, 5: No. 7975.

2554
Del Bello, N. OSTEOGENESI SPERIMENTALE DA INIEZIONI SOTTOPERIOSTEE DI SOSTANZE ORGANICHE E DI SOLUZIONE FISIOLOGICA IN ANIMALI ADULTI. Pat. sper., Tor., 1948, 37: 305-326. 75 refs. Abstracted in: Excerpta med., Sect. 5, 1951, 4: No. 2329.

2555
Del Bello, N. RICERCHE SPERIMENTALI SUL COSIDETTO "CHONDRIUM NOVUM." Ann. ital. chir., 1948, 25: 111-123. 17 refs.

2556
Fogliati, E. STUDI SPERIMENTALI SULL'OSTEOGENESI ETEROTOPICA. CONTRIBUTO ALLO STUDIO DELL'OSTEOGENESI ETEROTOPICA. OSTEOGENESI CONSECUTIVA AD INIEZIONE DI ESTRATTI ALCOOLICI DI OSSA. NOTA PRIMA. Chir. org. movim., 1950, 34: 129-131. Abstracted in: Excerpta med., Sect. 5, 1950, 3: No. 3705.

2557
Hartley, J. and Tanz, S. S. EXPERIMENTAL OSTEOGENESIS IN RABBIT MUSCLE. A.M.A. Arch. Surg., 1951, 63: 845-851. 11 refs. "Although various extracts (50% alcohol, lipid, phospholipid, fatty acid) of bone and bone marrow of rabbits and calves produced bone and/or cartilage at the site of injection into rabbit skeletal muscle, the reaction is probably nonspecific and may be the result of the irritating qualities of the material injected or its solvent."

2558
Hartley, J., Tanz, S. S. and Schneider, M. OSTEOGENESIS PRODUCED BY A CHEMICAL EXTRACT OF BONE. J. Mount Sinai Hosp., N. Y., 1949, 15: 383-387. 10 refs. "Experiments are recorded which confirm previous reports that alcoholic extracts of the growing ends of post-fetal bone contain a chemical substance which, when injected into muscle, can iniate new bone information.

2559
Heinen, J. H., Jr., Dabbs, G. H. and Mason, H. A. THE EXPERIMENTAL PRODUCTION OF ECTOPIC CARTILAGE AND BONE IN THE MUSCLES OF RABBITS. J. Bone Surg., 1949, 31A: 765-775. 20 refs. Abstracted in: Chem. Abstr., 1953, 47: 2859[h]; Excerpta med., Sect. 5, 1950, 3: No. 2349.

2560
Hellstadius, A. A STUDY OF NEW BONE FORMATION PROVOKED BY SUBPERIOSTEAL INJECTIONS OF BLOOD PLASMA, EXTRACT OF BONE MARROW, ETC.: AN INVESTIGATION BY EXPERIMENTS ON ANIMALS. Acta chir. scand., 1947, 95: 31-53. pl. 25 refs. Abstracted in: Excerpta med., Sect. 5, 1949, 2: No. 990; Biol. Abstr., Balt., 1948, 22: No. 8515.

2561
Hempel, J. ZUR FRAGE DER WIRKUNGSWEISE VON GEWEBSAUTOLYSATEN, INSBESONDERE VON KALLUS-AUTOLYSAT. MIT EINEM BEITRAG ZUR SPONTANEN ENTSTEHUNG VON KNOCHENZYSTEN. Deut. Zschr. Chir., 1931, 231: 387-404. 40 refs. Abstracted in: Biol. Abstr., Balt., 1933, 7: No. 1011. In guinea pigs bone and callus autolysates were injected into the articular membranes, periosteum and connective tissue of the musculature and the results studied histologically. Neither new bone formation nor metaplasia of connective tissue into osseous tissue was observed, unless preceded by trauma.

2562
Henschen, C. ERZEUGUNG VON CHONDRIUM NOVUM DURCH WIEDERHOLTE SUBPERICHONDRALE EINSPRITZUNGEN VON KNORPELZELLENAUTOLYSAT ODER KNORPELZELLENAUFSCHWEMMUNGEN AN OHR- ODER RIPPENKNORPEL. Zbl. Chir., 1939, 66: 929-936. 16 refs.

2563
Henschen, C. ERZEUGUNG VON OS NOVUM DURCH WIEDERHOLTE SUBPERIOSTALE EINSPRITZUNGEN EINER PERIOST-MARKZELLENAUFSCHWEMMUNG UNTER DAS PERIOST DER TIBIA, DER CRISTA ILEI ODER DES STERNUMS. Zbl. Chir., 1939, 66: 514-523. 10 refs.

2564
Hoffmeister, W. BEEINFLUSSUNG SCHLECHTHEILENDER FRAKTUREN DURCH EIN EIWEISSFREIES EXTRACT AUS KNOCHENKEIMGEWEBE. MUnch. med. Wschr., 1933, 80: 1055-1057.

2565
Lacroix, P. NOTE SUR LES PROPRIÉTÉS OSTÉOGÈNES DES EXTRAITS DE TISSUS SQUELETTIQUES. Arch. anat., Strasb., 1952, 34: 249-252. 11 refs. Review of the literature, 1949-1950.

2566
Lacroix, P. RECENT INVESTIGATIONS ON THE GROWTH OF BONE. Nature, Lond., 1945, 156: 576. On the basis of 2 experiments of cartilage transplantation in rabbits which resulted in ossification and one experiment in which ossification followed injection into muscle of an alcoholic extract from the epiphyseal cartilage of a newborn rabbit, it was concluded that an organizer exists in cartilage.

2567
Levander, G. ON THE CAUSATION OF NEW-BONE FORMATION. Acta chir. scand., 1936, 78: 217-219. Discussion: p. 218-219.

2568
Levander, G. and Willstaedt, H. ALCOHOL-SOLUBLE OSTEOGENIC SUBSTANCE FROM BONE MARROW. Nature, Lond., 1946, 157: 587. 4 refs.

2569
Lindahl, O. and Orell, S. EXPERIMENTS WITH BONE EXTRACTS. Acta chir. scand., 1951, 101: 136-142. 10 refs. Abstracted in: Excerpta med., Sect. 9, 1951, 5: No. 7977.

2570
Miszurski, B. FURTHER CONTRIBUTION TO THE INFLUENCE OF EXTRACTS FROM EMBRYOS OF DIFFERENT AGE ON THE GROWTH OF CARTILAGE AND OSSIFICATION IN VITRO. Arch. exp. Zellforsch., 1939, 23: 80-83. 1 ref. Abstracted in: Biol. Abstr., Balt., 1940, 14: No. 2715.

2571
Miszurski, B. RECHERCHES SUR L'INFLUENCE DES EXTRAITS D'EMBRYONS DE DIFFÉRENTS AGES SUR LA CROISSANCE ET LA DIFFERENCIATION DU CARTILAGE ET DE L'OS EN CULTURE. Arch. anat. micr., Par., 1939-40, 35: 223-241. pl. 9 refs. Abstracted in: Biol. Abstr., Balt., 1941, 15: No. 17946.

2572
Mondolfo, S. INVESTIGACIONES EXPERIMENTALES SOBRE LA ACELERACIÓN DEL CALLO ÓSEO EN LAS FRACTURAS. Rev. ortop. traumat., B. Air., 1949, 19: 47-60. Abstracted in: Excerpta med., Sect. 9, 1951, 5: No. 2451. "Experiments were carried out in 158 animals to hasten bone callus formation by means of alcoholic extract of bone, antireticulocytotoxic serum and total embryonic extract. Experiments have failed to obtain an osteogenic substance from bovine bones following Annersten's technique. Adult guinea pigs treated by injections of antireticular serum develop more callus than controls. Clinically sound union, however, is obtained in the same period of time. Total embryonic extracts also develop a hypertrophic callus but union takes the same time as in controls." - Excerpta med.

2573
Rendano, C. SU DI UN PARTICOLARE PRINCIPIO OSTEOGENETICO CONTENUTO NELLE OSSA NORMALI. Ann. ital. chir., 1942, 21: 249-271. 16 refs. In rabbits studies were made of the experimental induction of bone in soft tissue by injection of alcoholic extracts. The results were essentially negative.

2574
Roth, H. EXTRAKTVERSUCHE MIT KONSERVIERTEM KNOCHENGEWEBE. Schweiz. med. Wschr., 1950, 80: 1051-1053. 5 refs. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 17443; Excerpta med., Sect. 1, 1951, 5: No. 978.

2575
Schreiber, B. ULTERIORI OSSERVAZIONI SULLA INDUZIONE OSSEA NEGLI ANFIBI PER MEZZO DI ESTRATTI ALCOLICI DI OSSO. Boll. Soc. ital. biol. sper., 1950, 26: 526-528. 8 refs.

2576
Shkurov, B. I. GISTOLOGICHNI DANI PRO VPLYV PRODUKTIV ROZPADU TKANYN I ORGANIV NA REGENERATSIIU KISTKOVOI TKANYNY V UMOVAKH EKSPERYMENTU. [HISTOLOGICAL DATA ON THE EFFECT OF THE PRODUCTS OF DEGENERATION OF TISSUES AND ORGANS UPON THE REGENERATION OF BONE TISSUE IN EXPERIMENTAL CONDITIONS] Eksp. med., Kharkov, 1940, No. 1, 76-87. French summary.

2577
Wachsmuth, G. EXPERIMENTELLER BEITRAG ZUM KAUSALEN PROBLEM DER OSTEOGENESE. Arch. klin. Chir., 1950, 265: 58-68. Abstracted in: Excerpta med., Sect. 1, 1951, 5: No. 60.

2578
Willestaedt, H. and Levander, G. STUDIES IN OSTEOGENESIS. Acta orthop. scand., 1950, 19: 419-432. 6 refs. English, French and German summaries. Abstracted in: Chem. Abstr., 1951, 45: 5794[g]. The osteogenic activity of an alcohol extract of bone was not removed by benzene or petroleum either but was precipitated by acetone. The precipitate was soluble in water and insoluble in oil." - Chem. Abstr.

See:

710	712	821	2453	2483
2491	2494	2495	2496	2524

TRACE ELEMENTS (ADVENTITIOUS AND NORMALLY OCCURRING)

2579
Alexander, G. V., Nusbaum, R. E. and MacDonald, N. S. THE BORON AND LITHIUM CONTENT OF HUMAN BONES. J. Biol. Chem., 1951, 192: 489-496. 21 refs. Abstracted in: Nuclear Sc. Abstr., 1951, 5: No. 6580; Chem. Abstr., 1952, 46: 2158[a]. Spectrographic investigations were made on 116 ashed samples of bone from 33 individuals to determine the amounts of boron and lithium normally to be found in the human skeleton. Results are discussed and presented in tables.

TRACE ELEMENTS (ADVENTITIOUS AND NORMALLY OCCURRING) (Continued)

2580
Asling, C. W., Hamilton, J. G., Axelrod-Heller D. and Louie, B. J. THE LOCALIZATION OF CERTAIN ALKALINE AND RARE EARTH ELEMENTS IN THE COSTOCHONDRAL JUNCTION OF THE RAT. Anat Rec., 1952, 113: 285-300. 12 refs. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 1098.

2581
Barclay, R. K., Peacock, W. C. and Karnofsky, D. A. DISTRIBUTION AND EXCRETION OF RADIOACTIVE THALLIUM IN THE CHICK EMBRYO, RAT AND MAN. J. Pharm. Exp. Ther., 1953, 107: 178-187. 21 refs. Abstracted in: Ber. ges. Physiol., 1953, 161: 122. The femur, humerus, skull, sternum, rib and intervertebral disc were included among the various tissues studied.

2582
Braude, R., Free, A. A., Page, J. E. and Smith, E. L. THE DISTRIBUTION OF RADIOACTIVE COBALT IN PIGS. Brit. J. Nutrit., 1949, 3: 289-292. 17 refs. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 555. "The values for pancreas, liver and bile were lower, those for cartilage and long bone higher."

2583
Comar, C. L., Singer, L. and Davis, G. K. MOLYBDENUM METABOLISM AND INTERRELATIONSHIPS WITH COPPER AND PHOSPHORUS. J. Biol. Chem., 1949, 180: 913-922. 14 refs. Abstracted in Biol. Abstr., Balt., 1950, 24: No. 3488.

2584
Copp, D. H. IMPLICATIONS OF ATOMIC ENERGY IN MEDICINE AND DENTISTRY. III. APPLICATION IN THE STUDY OF BONES AND TEETH. Oral Surg., 1950, 3: 613-621. 47 refs. Abstracted in: Nuclear Sc. Abstr., 1950, 4: No. 4200. "After a brief review of the properties of bone tissue, a description is presented of work utilizing P^{32}, Ca^{45}, $Sr^{85,89,90}$, C^{14} in the study of mineral exchange, general bone metabolism, parathyroid effects on bone, rickets, severe P deficiency, and specific uptake by osteogenic tissue. This is followed by a brief discussion of the deposition of plutonium and fission products in bone and their elimination..." - Nuclear Sc. Abstr.

2585
Goldenberg, H. and Sobel, A. E. CALCIFICATION. IX. INFLUENCE OF ALKALINE EARTHS ON SURVIVAL OF THE CALCIFYING MECHANISM. Proc. Soc. Exp. Biol., N. Y., 1952, 81: 695-698. 16 refs. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 19690; Chem. Abstr., 1953, 47: 4502^{f}. The influence of Ca, Sr, Mg, Ba, Be, Mn, Co and Ni were studied.

2586
Hamilton, J. G. THE METABOLISM OF THE FISSION PRODUCTS AND THE HEAVIEST ELEMENTS. Radiology, 1947, 49: 325-343. 10 refs. Abstracted in: Excerpta med., Sect. 2, 1949, 2: No. 3508; Chem. Abstr., 1948, 42: 2328^{g}.

2587
Hevesy, G. [C.] APPLICATION OF RADIOACTIVE INDICATORS IN BIOLOGY. Annual Rev. Biochem., 1940, 9: 641-662. 95 refs. See particulary, Skeleton: p. 645-646.

2588
Jolibois, P. and Hébert, C. SUR LA COMPOSITION CHIMIQUE DES PHOSPHATES DE CALCIUM NATURELS. C. rend. Acad. sc., 1946, 222: 569-572. Abstracted in: Chem. Abstr., 1946, 40: 3697^{6}.

2589
Katz, J. and Kornberg, H. A. ABSORPTION AND DEPOSITION IN THE SKELETON AND SOFT TISSUES OF THE RAT OF PLUTONIUM FED CHRONICALLY AS SOLUTIONS OF VERY LOW MASS CONCENTRATION. Hanford Atomic Products Operation, Biology Research. Annual Report, 1952. Richland, Wash., 1953, p. 78-84. 4 refs.

2590
Katz, J., Kornberg, H. A. and Parker, H. M. ABSORPTION OF PLUTONIUM FED CHRONICALLY TO RATS. I. FRACTION DEPOSITED IN SKELETON AND SOFT TISSUES FOLLOWING ORAL ADMINISTRATION OF SOLUTIONS OF VERY LOW MASS CONCENTRATION. 20p. Hanford Atomic Products Operation, Richland, Wash., 1953. (HW-28991) 7 refs.

2591
Kidman, B., Tutt, M. L. and Vaughan, J. M. EXCRETION OF YTTRIUM-91 IN RABBITS. Nature, Lond., 1951, 167: 858. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 36043. "Sr^{89} and Y^{91} in radioactive equilibrium were injected into weanling and adult rabbits, and the decay curves of their excreta were analyzed. The weanlings retained 0.63% of the dose of Y^{91} per g. of bone, adults 0.33%; weanlings excreted 12% in urine, adults 24%. (No age difference had been reported for rats.) Differences in excretion were not correlated with dietary differences."- Biol. Abstr.

2592
Koch, W. DER NACHWEIS VON THORIUM X IN DER WACHSTUMSFUGE UND SEIN EINFLUSS AUF DAS LÄNGENWACHSTUM BEIM JUGENDLICHEN KANINCHEN. Zschr. Orthop., 1951, 80: 532-546. 13 refs.

2593
Koch, W. DIE VERTEILUNG VON PETEOSTHOR UND SEINER HAUPTBESTANDTEILE THORIUM X UND PLATIN IM HERANWACHSENDEN ORGANISMUS UND DER EINFLUSS VON THORIUM X AUF DAS FUGENWACHSTUM BEIM JUGENDLICHEN KANINCHEN. Strahlentherapie, 1951, 85: 253-289. 15 refs. Abstracted in: Nuclear Sc. Abstr., 1952, 6: No. 63.

2594
Lindemann, R. EMISSIONSSPEKTROGRAPHISCHE ALUMINIUM BESTIMMUNG IN ASCHEN BIOLOGISCHER MATERIALIEN. Zschr. Physik., 1935, 95: 6-29. 23 refs. Abstracted in: Chem. Abstr., 1935, 29: 6916^{3}. The aluminum contents of various organs including bones of the dog are given in tabular form.

2595
Lux, H. DIE HÄUFIGKEIT DER SELTENEN ERDEN IN TIERKNOCHEN. Zschr. anorg. Chem., 1938, 240: 21-30. 11 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1938-39, 8: No. 4834; Chem. Abstr., 1939, 33: 2158^{4}. "X-ray spectrophotographs... showed the presence of Sc, V, La, Ce, Nd, Gd and Dy, the average concentration being 4 per kg. bone ash. This is approximately one-thousandth of their concentration in the earth's crust and the evidence is considered to prove that they do not occur in the lattice structure of the hydroxy-apatite of the bone." - Nutrit. Abstr.

2596
MacClure, F. J. MINERAL METABOLISM (FLUORINE AND OTHER TRACE ELEMENTS). Annual Rev. Biochem., 1949, 18: 335-354. 197 refs. A review of the literature appearing in the past five years on fluorine, boron, cobalt, manganese and zinc. A considerable portion of the section on manganese deals with bone.

2597
MacDonald, N. S. FIXATION OF METAL IONS BY BONE TISSUE. Fed. Proc., Balt., 1953, 12: 346. An abstract.

2598
MacDonald, N. S., Nusbaum, R. E., Alexander, G. V., Ezmirlian, F., Spain, P. and Rounds, D. E. THE SKELETAL DEPOSITION OF YTTRIUM. J. Biol. Chem., 1952, 195: 837-841. 8 refs. Abstracted in: Biol. Abstr., Balt., 1952, 26: No. 24245; Nuclear Sc. Abstr., 1952, 6: No. 5971. "It is concluded that yttrium is not a "boneseeker" of the same degree as stontium and lead."

TRACE ELEMENTS (ADVENTITIOUS AND NORMALLY OCCURRING) (Continued)

2599
Nishimura, H. ZINC DEFICIENCY IN SUCKLING MICE DEPRIVED OF COLOSTRUM. J. Nutrit., 1953, 49: 79-97. 2 pl. 25 refs. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 21628.

2600
Nusbaum, R. E., MacDonald, N. S., Alexander, G. V., Ezmirlian, F. and Spain, P. THE BORON AND LITHIUM CONTENT OF HUMAN BONES. 14p. University of California Atomic Energy Project, Los Angeles, Calif., 1951. (UCLA-129) 23 refs. Abstracted in: Nuclear Sc. Abstr., 1951, 5: No. 3837.

2601
Rayner, B., Tutt, M. and Vaughan, J. THE DEPOSITION OF ^{91}Y IN RABBIT BONES. Brit. J. Exp. Path., 1953, 34: 138-145. 12 refs. Abstracted in: Chem. Abstr., 1953, 47: 10649b. After a single intravenous injection of ^{91}Y in young rabbits, chemical and autoradiographic studies were made of the bones. Deposition of the element was extremely rapid and concentrated in the site of active growth beneath the epiphysis and in patches in the shaft "presumably in association with the connective tissue around the blood vessels." New bone formed long after the original injection also contained traces of the radio-yttrium, believed to have been reabsorbed from the blood in the normal processes of resorption.

2602
Rutishauser, E. ÜBER DIE VERTEILUNG DER SCHWERMETALLE IN SKELETT. BETRACHTUNGEN ÜBER DAS STÄRKERE BEFALLENSEIN GEWISSER KNOCHEN UND KNOCHENTEILE BEI GENERALISIERTEN KNOCHENLEIDEN. (DISKUSSIONSBEMERKUNG.) Schweiz. Mschr. Zahnh., 1935, 45: 93-95. 2 refs.

2603
Rygh, O. IMPORTANCE OF TRACE ELEMENTS IN NUTRITION. Research, Lond., 1949, 2: 340-341. 2 refs. Strontium and vanadium increase bone calcification while barium, zinc and thallium break down osseous tissue.

2604
Rygh, O. RECHERCHES SUR LES OLIGO-ÉLÉMENTS. I. DE L'IMPORTANCE DU STRONTIUM, DU BARYUM ET DU ZINC. Bull. Soc. chim. biol., Par., 1949, 31: 1052-1061. 10 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1949-50, 19: No. 5193; Chem. Abstr., 1950, 44: 3105a.

2605
Rygh, O. RECHERCHES SUR LES OLIGO-ÉLÉMENTS. II. DE L'IMPORTANCE DU THALLIUM ET DU VANADIUM, DU SILICIUM ET DU FLUOR. Bull. Soc. chim. biol., Par., 1949, 31: 1403-1407. 5 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1950-51, 20: No. 719; Excerpta med., Sect. 2, 1951, 4: No. 1248.

2606
Rygh, O. RECHERCHES SUR LES OLIGO-ÉLÉMENTS. III. SUR L'IMPORTANCE DU STRONTIUM, DU VANADIUM, DU BARYUM, DU THALLIUM ET DU ZINC DANS LE SCORBUT. Bull. Soc. chim. biol., Par., 1949, 31: 1408-1412. 13 refs.

2607
Schubert, J., Finkel, M. P., White, M. R. and Hirsch, G. M. PLUTONIUM AND YTTRIUM CONTENT OF THE BLOOD, LIVER, AND SKELETON OF THE RAT AT DIFFERENT TIMES AFTER INTRAVENOUS ADMINISTRATION. J. Biol. Chem., 1950, 182: 635-642. 23 refs.

2608
Scott, K. G., Axelrod, D. J. and Hamilton, J. G. THE METABOLISM OF CURIUM IN THE RAT. J. Biol. Chem., 1949, 177: 325-335. 2 pl. 4 refs. Abstracted in: Biol. Abstr., Balt., 1949, 23: No. 14386.

2609
Scott, K. G., Axelrod, D. J., Fisher, H., Crowley, J. F. and Hamilton, J. G. THE METABOLISM OF PLUTONIUM IN RATS FOLLOWING INTRAMUSCULAR INJECTION. J. Biol. Chem., 1948, 176: 283-293. 2 pl. 3 refs. "Plutonium was not found to be absorbed from the gastrointestinal tract to any extent. The skeleton was the main organ of deposition of plutonium, and the degree of retention in this organ was very great. No significant differences were observed in the metabolic properties of plutonium absorbed by the body for its three valence states. Radioautographs demonstrate the deposition of plutonium in the region of the endosteum, periosteum, and the endosteal covering of the trabecular bone."

2610
Scott, K. G., Copp, D. H., Axelrod, D. J. and Hamilton, J. G. THE METABOLISM OF AMERICIUM IN THE RAT. J. Biol. Chem., 1948, 175: 691-703. 2 pl. 7 refs. Abstracted in: Biol. Abstr., Balt., 1949, 23: No. 6341; Chem. Abstr., 1949, 43: 744n.

2611
Sheldon, J. H. and Ramage, H. A SPECTROGRAPHIC ANALYSIS OF HUMAN TISSUES. Biochem. J., Lond., 1931, 25: 1608-1627. 20 refs. Tissues both healthy and diseased were examined to determine if chemical elements other than those recognized as universal constituents of protoplasm were present. For cartilage, copper was found in traces in all specimens except from a full-term foetus; manganese was found in a specimen from a two-year-old female infant only; rubidium occurred in all; while a trace of lead was present in one and merest traces in four specimens. For parietal bone, copper was detected in specimens from both infant and foetus, but manganese and rubidium were absent. Bone from the infant contained a trace of lead.

2612
*Timm, F. BARIUM IN ANIMAL BONES. Deut. Zschr. gerichtl. Med., 1932, 19: 279. Abstracted in: Nutrit. Abstr., Aberdeen, 1933-34, 3: No. 533; Chem. Abstr., 1932, 26: 6000.

2613
White, M. R. and Schubert, J. THE ACTION OF SALTS OF ZIRCONIUM AND OTHER METALS ON PLUTONIUM AND YTTRIUM DISTRIBUTION AND EXCRETION. J. Pharm. Exp. Ther., 1952, 104: 317-324. 14 refs.

See:

426 427 727 1245 2058
2248 2402 2616 2675 2697
2707 2710

TRACE ELEMENTS - COPPER

see also TRACE ELEMENTS

2614
Baxter, J. H. and Van Wyk, J. J. A BONE DISORDER ASSOCIATED WITH COPPER DEFICIENCY. I. GROSS MORPHOLOGICAL, ROENTGENOLOGICAL, AND CHEMICAL OBSERVATIONS. Bull. Johns Hopkins Hosp., 1953, 93: 1-24. 5 pl. 22 refs. Abstracted in: Biol. Abstr., Balt., 1954, 28: No. 3006; Nutrit. Abstr., Aberdeen, 1954, 24: No. 852; Chem. Abstr., 1954, 48: 4656c; Excerpta med., Sect. 2, 1954, 7: No. 2051.

TRACE ELEMENTS - COPPER (Continued)

2615
Baxter, J. H., Van Wyk, J. J. and Follis, R. H., Jr. A BONE DISORDER ASSOCIATED WITH COPPER DEFICIENCY. II. HISTOLOGICAL AND CHEMICAL STUDIES ON THE BONES. Bull. Johns Hopkins Hosp., 1953, 93: 25-40. 4 pl. 11 refs. Abstracted in: Excerpta med., Sect. 2, 1954, 7: No. 2052. "It was concluded that the bone disorder consisted of a diffuse osteoporosis, with no primary disturbance in the calcification mechanism."

2616
Davis, G. K. THE INFLUENCE OF COPPER ON THE METABOLISM OF PHOSPHORUS AND MOLYBDENUM. IN: COPPER METABOLISM: A SYMPOSIUM ON ANIMAL, PLANT AND SOIL RELATIONSHIPS. (McElroy, W. D. and Glass, B.) Balt., Johns Hopkins Press, 1950, p. 216-229. 6 refs.

2617
Donner, L. and Daum, S. O METABOLISMU MĚDI. SDĚLENÍ III: UKLÁDÁNÍ A VYMĚŠOVÁNÍ MĚDI U POKUSNÝCH ZVÍŘAT. [COPPER METABOLISM. III. STORAGE AND EXCRETION OF CU IN EXPERIMENTAL ANIMALS] Gastroenter. bohema., 1950, 4: 243-252. 12 refs. English summary. "After administration the Cu content rose chiefly in liver (average 494%), to a less extent in other tissues (blood 123%, skin 105%, spleen 55%, bones 54%, lungs and heart 51%, kidney 10%). Cu feeding influenced the distribution of Fe in the rat organism. The Fe content was diminished in liver (by about 53%), but it was greatly increased in blood (1038%) and in spleen (201%). Cu seemed to mobilize Fe from its depots to blood." - Excerpta med.

2618
Tompsett, S. L. THE COPPER AND "INORGANIC" IRON CONTENTS OF HUMAN TISSUES. Biochem. J., Lond., 1935, 29: 480-486. 17 refs. Abstracted in: Chem. Abstr., 1935, 29: 5169[9]; Biol. Abstr., Balt., 1936, 10: No. 7931. "Vertebra contains a very low concentration of copper which is fairly constant throughout the series. Rib on the other hand appears to contain very varied amounts of copper.... It appears possible that the bones may act as stores for copper as well as the liver.... Vertebra and rib contain fairly high concentrations of iron, and, in contrast to copper, the concentrations are almost identical in the two types of bone. Data are summarized in tables.

See:

2581 2583 2611

TRACE ELEMENTS - FLUORINE

2619
Candeli, A. and Scassellati Sforzolini, G. RICERCHE SULLA FISSAZIONE DEL FLUORO DA PARTE DEI TESSUTI SCHELETRICI. Boll. Soc. ital. biol. sper., 1953, 29: 1458-1460. 7 refs.

2620
Comar, C. L., Visek, W. J., Lotz, W. E. and Rust, J. H. EFFECT OF FLUORINE ON CALCIUM METABOLISM AND BONE GROWTH IN PIGS. Am. J. Anat., 1953, 92: 361-389. pl. 15 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1953, 23: No. 4697.

2621
Goldenberg, H. and Sobel, A. E. CALCIFICATION. V. INFLUENCE OF FLUORIDE AND CYANIDE IONS IN THE PRESENCE AND ABSENCE OF MAGNESIUM. Proc. Soc. Exp. Biol., N. Y., 1951, 78: 719-723. 16 refs. Abstracted in: Biol. Abstr., Balt., 1952, 26: No. 14623; Excerpta med., Sect. 2, 1953, 6: No. 1458.

2622
Megirian, D. THE DEPOSITION OF FLUORIDE IN GLYCOL-ASHED BONE. 49p. University of Rochester Atomic Energy Project, Rochester, N. Y., 1951. (UR-168) 55 refs. Abstracted in: Nuclear Sc. Abstr., 1951, 5: No. 4350.

2623
Neuman, W. F., Neuman, M. W., Main, E. R., O'Leary, J. and Smith, F. A. THE SURFACE CHEMISTRY OF BONE. II. FLUORIDE DEPOSITION. J. Biol. Chem., 1950, 187: 655-661. 18 refs. Abstracted in: Chem. Abstr., 1951, 45: 5755[b]. "The mechanism of fluoride deposition in bone was investigated by means of isotopic exchange, ion competition, and column techniques. It was demonstrated that fluoride replaces either hydroxyl or bicarbonate ions in the surfaces of the mineral phase."

2624
Paff, G. H. and Boyd, M. J. EFFECTS OF FLUORIDE ON DEVELOPING BONES IN TISSUE CULTURE. Proc. Soc. Exp. Biol., N. Y., 1952, 79: 518-520. 6 refs. Abstracted in: Biol. Abstr., Balt., 1952, 26: No. 25194; Excerpta med., Sect. 1, 1953, 7: No. 1007. "The experiment concerned calcification of cartilage not of bone. It is concluded that NaF, at concentrations which do not disturb growth, can seriously interfere with the mineralization process. ... The authors suggest that NaF acted both by interfering with the production of phospho-pyruvate, and by the binding of calcium by fluoride." - Excerpta med.

2625
Smith, F. A., Gardner, D. E. and Hodge, H. C. AGE INCREASE IN FLUORIDE CONTENT IN HUMAN BONE. Fed. Proc., Balt., 1953, 12: No. 1212. Samples of vertebrae and rib were analyzed from 85 male and 73 female patients ranging in age from fetuses to over 90 years. Findings show a linear increase in fluoride concentration in the ash with age. The concentration is slightly higher in the vertebrae than in the ribs.

2626
Tompsett, S. L. BONE AND TOXIC MINERALS. Brit. J. Nutrit., 1952, 6: 423-426. 10 refs. Abstracted in: Chem. Abstr., 1953, 47: 5515[i]. This is a general article discussing the deposition of certain toxic elements in the skeleton in preference to the soft tissues. Fluorine and radioactive metals are briefly mentioned, while more attention is given to the absorption and distribution of lead in the animal body. Tables showing the measurable quantities of lead found in "normal" human tissue and tissue of persons with a history of abnormal exposure to lead are presented. Data for the rib, vertebra, femur and tibia are included.

2627
Volker, J. F., Sognnaes, R. F. and Bibby, B. G. STUDIES ON THE DISTRIBUTION OF RADIOACTIVE FLUORIDE IN THE BONES AND TEETH OF EXPERIMENTAL ANIMALS. Am. J. Physiol., 1941, 132: 707-712. 8 refs.

See:

2399 2596 2605 2900

TRACE ELEMENTS - GALLIUM

2628
Dudley, H. C. and Friedman, L. INFLUENCE OF VITAMIN D ON DEPOSITION OF GALLIUM IN BONE OF THE RAT. Science, 1952, 115: 146-147. 6 refs. Abstracted in: Chem. Abstr., 1952, 46: 4625[h].

TRACE ELEMENTS - GALLIUM (Continued)

2629
Dudley, H. C. and Maddox, G. E. DEPOSITION OF RADIO GALLIUM (GA^{72}) IN SKELETAL TISSUES. J. Pharm. Exp. Ther., 1949, 96: 224-227. 5 refs. Abstracted in: Chem. Abstr., 1949, 43: 7580[1]. "Radioautographs of bones of rabbits treated with radiogallium (Ga^{72}) strengthen the hypothesis that Ga is a useful tool for the study of bone metabolism. Ga is deposited throughout the osteoid tissues of the rabbit and dog. It is especially concentrated at the areas of greatest osteogenic activity in the young animal, i.e., the epiphyseal line."

2630
Dudley, H. C. and Marrer, H. H. METABOLISM OF GALLIUM: DEPOSITION IN AND CLEARANCE FROM BONE. J. Pharm. Exp. Ther., 1952, 106: 129-134. 17 refs. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 8921; Brit. Abstr., Sect. AIII, 1953, p. 502.

2631
Dudley, H. C., Imirie, G. W., Jr. and Istock, J. T. DEPOSTION OF RADIOGALLIUM (GA^{72}) IN PROLIFERATING TISSUES. Radiology, 1950, 55: 571-578. 9 refs.

2632
Dudley, H. C., Maddox, G. E. and LaRue, H. C. STUDIES OF THE METABOLISM OF GALLIUM. J. Pharm. Exp. Ther., 1949, 96: 135-138. 3 refs. Abstracted in: Biol. Abstr., Balt., 1950, 24: No. 400.

2633
Munn, J. I. and Dudley, H. C. STUDIES OF THE METABOLISM OF GALLIUM. IV. EFFECT OF GALLIUM ON ALKALINE PHOSPHATASE AND CALCIFICATION IN VITRO. Naval Med. Res. Inst., Bethesda, Md. Research reports, 1953, 2: 1-8. 13 refs.

TRACE ELEMENTS - IRON

2634
Austoni, M. E. and Greenberg, D. M. STUDIES IN IRON METABOLISM WITH THE AID OF ITS ARTIFICIAL RADIOACTIVE ISOTOPE. THE ABSORPTION, EXCRETION, AND DISTRIBUTION OF IRON IN THE RAT ON NORMAL AND IRON-DEFICIENT DIETS. J. Biol. Chem., 1940, 134: 27-41. 14 refs. Bone was included among the tissues studied.

2635
Austoni, M. E., Rabinovitch, A. and Greenberg, D. M. THE IRON CONTENT OF THE TISSUES OF NORMAL, ANEMIC, AND IRON-ENRICHED RATS FREED FROM BLOOD BY VIVIPERFUSION. J. Biol. Chem., 1940, 134: 17-26. 9 refs. Bone is included among the tissues analyzed. Data are presented in tabular form.

2636
*Kaneko, R. INFLUENCE OF VITAMIN A AND D ON THE CHANGES IN BONE DUE TO THE CONTINUOUS ADMINISTRATION OF INORGANIC IRONS. J. Orient. M., Dairen, 1941, 34: 357-370. Abstracted in: Chem. Abstr., 1941, 35: 8049[2]. "The production of osseous atrophy by continuous administration of inorganic irons can be prevented if a small amount of vitamin A is added to the diet. Vitamin D has no effect." - Chem. Abstr.

See:

2618

TRACE ELEMENTS - LEAD

2637
Barrett, F. R. STUDIES IN THE DEPOSITION OF LEAD IN BONE. II. CALCIUM-PHOSPHORUS AND LEAD-PHOSPHORUS RATIOS. Med. J. Australia, 1943, 30: 433-435. 8 refs. Abstracted in: Biol. Abstr., Balt., 1944, 18: No. 10138; Nutrit. Abstr., Aberdeen, 1944-45, 14: No. 436.

2638
Barth, E. UNTERSUCHUNGEN ÜBER DEN BLEIGEHALT DER MENSCHLICHEN KNOCHEN. Virchows Arch., 1931, 281: 146-151. 6 refs. Abstracted in: Biol. Abstr., Balt., 1932, 6: No. 13025; Chem. Abstr., 1932, 26: 4369.

2639
*Behrens, B. and Baumann, A. ZUR PHARMAKOLOGIE DES BLEIS. IX. WEITERE UNTERSUCHUNGEN ÜBER DIE VERTEILUNG DES BLEIS MIT HILFE DER METHODE DER AUTOHISTORADIOGRAPHIE. Zschr. ges. exp. med., 1933, 92: 241-250. Abstracted in: Biol. Abstr., Balt., 1937, 11: No. 16329.

2640
*Behrens, B. and Baumann, A. ZUR PHARMAKOLOGIE DES BLEIS. X. DIE BEZIEHUNG DER BLEIABLAGERUNG ZUM CALCIUMSTOFFWECHSEL. Zschr. ges. exp. med., 1933, 92: 251-264. Abstracted in: Biol. Abstr., Balt., 1937, 11: No. 16329.

2641
Gant, V. A. LEAD POISONING. SECTION 1. EXPOSURES TO LEAD; ITS ABSORPTION, TRANSPORTATION, DISTRIBUTION, AND DEPOSITION IN THE TISSUES; THE PHOTOMETRIC DITHIZONE METHOD AS AN ACCURATE MEANS OF DETERMINATION; "NORMAL" LEAD IN TISSUES AND URINE; "NORMAL" VALUE IN BLOOD. Indust. M., 1938, 7: 608-622. 48 refs. For "normal" content of bone, see particularly p. 616-620. Data is summarized in tables.

2642
*Hashikura, K. [THE STUDIES ON THE GROWING PROCESS OF BONE BY MEANS OF VITAL STAINING METHOD OF LEAD ACETATE] Iryo, Tokyo, 1951, 5: 1-4. English summary. Abstracted in: Biol. Abstr., Balt., 1952, 26: No. 31236.

2643
Heynold, G. [M. L.] HISTOCHEMISCHE UNTERSUCHUNGEN ÜBER DIE ABHÄNGIGKEIT DES NORMALEN BLEIGEHALTES MENSCHLICHER KNOCHEN VOM LEBENSALTER. 16p. Zeulenroda, A. Oberreuter, 1937. (Inaug.-Diss.-Leipzig). 2 pl. 12 refs.

2644
Kehoe, R. A., Thamann, F. and Cholak, J. LEAD ABSORPTION AND EXCRETION IN RELATION TO DIAGNOSIS OF LEAD POISONING. J. Indust. Hyg., 1938, 15: 320-340. 11 refs.

2645
Kehoe, R. A., Thamann, F. and Cholak, J. ON THE NORMAL ABSORPTION AND EXCRETION OF LEAD. II. LEAD ABSORPTION AND LEAD EXCRETION IN MODERN AMERICAN LIFE. J. Indust. Hyg., 1933, 15: 273-288. 27 refs.

2646
Kehoe, R. A., Thamann, F. and Cholak, J. ON THE NORMAL ABSORPTION AND EXCRETION OF LEAD. III. THE SOURCES OF NORMAL LEAD ABSORPTION. J. Indust. Hyg., 1933, 15: 290-300. Approx. 75 refs.

2647
Kehoe, R. A., Thamann, F. and Cholak, J. ON THE NORMAL ABSORPTION AND EXCRETION OF LEAD. IV. LEAD ABSORPTION AND EXCRETION IN INFANTS AND CHILDREN. J. Indust. Hyg., 1938, 15: 301-305. 8 refs.

2648
Kreussler, [H. E.] M. HISTOCHEMISCHER NACHWEIS VON NORMALBLEI IM KNORPELGEWEBE DES MENSCHEN. 19p. Lpz., A. Edelmann, 1937. (Inaug.-Diss. -Leipzig). 2 pl. 37 refs.

2649
Kreussler, W. HISTOCHEMISCHER NACHWEIS VON NORMALBLEI IN GEFLÜGELKNOCHEN. 16p. Lpz., A. Edelmann, 1937. (Inaug.-Diss.-Leipzig). 4 pl. 19 refs.

TRACE ELEMENTS - LEAD (Continued)

2650
Lynch, G. R., Slater, R. H. and Osler, T. G. THE DETERMINATION OF TRACES OF LEAD IN BIOLOGICAL MATERIALS WITH SPECIAL REFERENCE TO BONE. Analyst, Lond., 1934, 59: 787-806. A method for determining the lead content of bone is described and data on the lead content of fresh bone and ashed bone from individuals (male and female) of various ages and occupations are tabulated. Findings of earlier authors are compared.

2651
MacDonald, N. S., Nusbaum, R. E., Ezmirlian, F., Barbera, R. C., Spain, P. and Rounds, D. E. MECHANISMS IN SKELETAL ACCUMULATION OF IONS. Arch. Biochem., N. Y., 1953, 43: 118-126. 18 refs. Abstracted in: Chem. Abstr., 1953, 47: 9467h. Rats were given a single injection of strontium and of lead and the metal ion content in the femurs was determined 24 hours later in order to ascertain "how the amount of metal deposited in the femurs... varied as a function of the dose administered."

2652
McLean, R., Calhoun, J. A. and Aub, J. C. MIGRATION OF INORGANIC SALTS IN BONE AS MEASURED BY RADIOACTIVE LEAD AND BY ALIZARIN. A.M.A. Arch. Indust. Hyg. & Occup. M., 1954, 9: 113-121. 14 refs.

2653
Morris, H. P. AGE AND THE LEAD CONTENT OF CERTAIN HUMAN BONES: A COMPILATION AND STATISTICAL ANALYSIS OF RECENTLY PUBLISHED DATA. J. Indust. Hyg., 1940, 22: 100-103. 5 refs. "... there is a significant increase with age in the lead content of four different human bones from different subjects, when expressed as milligrams of lead per kilogram fresh bone. This increase is less marked in the rib and vertebra than in the femur and tibia. The increase in lead per year in the femur was 0.810 mgm. per kilogram of fresh bone while for rib it was 0.060 mgm. and for vertebra, 0.044 mgm."

2654
Raab, H. and Brown, C. E. KNOCHENVERÄNDERUNGEN NACH EINVERLEIBUNG VON BLEIACETAT. Zschr. ges. exp. Med., 1934, 94: 346-352. 10 refs. Abstracted in: Biol. Abstr., Balt., 1936, 10: No. 11002; Chem. Abstr., 1934, 28: 6845[4].

2655
Sieber, E. HISTOCHEMISCHER BLEINACHWEIS IM KNOCHEN. Arch. exp. Path., Lpz., 1936, 181: 273-280. 5 refs. Abstracted in: Biol. Abstr., Balt., 1937, 11: No. 13839.

2656
Sobel, A. E. and Burger, M. THE BIOCHEMICAL BEHAVIOR OF LEAD. II. THE INFLUENCE OF CALCIUM, PHOSPHORUS AND VITAMIN D ON LEAD IN BLOOD AND BONE AFTER WITHDRAWAL OF LEAD FROM THE DIET. 17p. Office of Naval Research, Washington, Technical Report NR 180 025, Jan. 1954. 9 refs.

2657
Tompsett, S. L. THE DISTRIBUTION OF LEAD IN HUMAN BONES. Biochem. J., Lond., 1936, 30: 345-346. 2 refs. "In a series of 19 cases, the concentrations of lead were, rib 4.0-17.5, vertebrae 3.4-16.5, femur 18.2-108.3, tibia 15.3-96.5 mg. lead per kg. fresh bone."

2658
Tompsett, S. L. and Anderson, A. B. THE LEAD CONTENT OF HUMAN TISSUES AND EXCRETA. Biochem. J., 1935, 29: 1851-1864. 20 refs. A method is described for estimating lead content of tissues and excreta. Among the data presented are "normal" concentrations of lead in rib, vertebra and femur.

2659
Weyrauch, F. and Müller, H. DAS SOGENANNTE NORMALE BLEI IM MENSCHLICHEN KÖRPER. Zschr. Hyg., 1933, 115: 216-220. 9 refs. Abstracted in: Chem. Abstr., 1933, 27: 4568.

See:

2611 2626 2698

TRACE ELEMENTS - MANGANESE

see also TRACE ELEMENTS

2660
Amdur, M. O., Norris, L. C. and Heuser, G. F. THE LIPOTROPIC ACTION OF MANGANESE. J. Biol. Chem., 1946, 164: 783-784. 1 ref. At a given choline level more fat was found in the livers of rats receiving adequate manganese. Presence of manganese or choline in the diet also caused a reduction in the fat content of fresh bone.

2661
Amdur, M. O., Norris, L. C. and Heuser, G. F. THE NEED FOR MANGANESE IN BONE DEVELOPMENT BY THE RAT. Proc. Soc. Exp. Biol., N. Y., 1945, 59: 254-255. 7 refs. Abstracted in: Biol. Abstr., Balt., 1945, 19: No. 18200. "The length, density, breaking strength, and phosphatase content of the bones of manganese-deficient rats were lower than in pair-mates of the same weight receiving adequate manganese. There was no difference between the two groups in percentages of ash, calcium, phosphorus and magnesium in the fat-free dry bone."

2662
*Barnes, L. L., Sperling, G. and Maynard, L. A. BONE DEVELOPMENT IN THE ALBINO RAT ON A LOW MANGANESE DIET. Proc. Soc. Exp. Biol., N. Y., 1941, 46: 562-565. Abstracted in: Biol. Abstr., Balt., 1941, 15: No. 16812; Nutrit. Abstr., Aberdeen, 1941-42, 11: No. 1380.

2663
Caskey, C. D., Gallup, W. D. and Norris, L. C. THE NEED FOR MANGANESE IN THE BONE DEVELOPMENT OF THE CHICK. J. Nutrit., 1939, 17: 407-417. 19 refs. Abstracted in: Biol. Abstr., Balt., 1939, 13: No. 9165; Chem. Abstr., 1939, 33: 6397[8]. "... the abnormal shortening of the bones of chicks is probably the direct effect of the upset in calcium and phosphorus metabolism resulting from manganese deficiency."

2664
Chornock, C. S., Guerrant, N. B. and Dutcher, R. A. EFFECT OF MANGANESE ON CALCIFICATION IN THE GROWING RAT. J. Nutrit., 1942, 23: 445-458. 15 refs. Abstracted in: Biol. Abstr., Balt., 1942, 16: No. 19732.

2665
Ellis, G. H., Smith, S. E. and Gates, E. M. FURTHER STUDIES OF MANGANESE DEFICIENCY IN THE RABBIT. J. Nutrit., 1947, 34: 21-31. 23 refs. Abstracted in: Biol. Abstr., Balt., 1948, 22: No. 10906; Chem. Abstr., 1947, 41: 5591[1].

2666
Fore, H. and Morton, R. A. THE MANGANESE IN BONE. Biochem. J., Lond., 1952, 51: 598-600. 1 ref. "Spectrographic studies and determinations based on periodate oxidations show that the manganese content of ox femur is of the order 0.27-0.51 ppm. depending on the type of bone, compact or cancellous. Irrespective of the type this corresponds to about 1.4 ppm. expressed on the ash. Most of the manganese is associated with the inorganic matrix, but a small proportion is bound to the organic matrix. Little manganese, if any, accompanies the water-soluble alkaline phosphatase."

TRACE ELEMENTS - MANGANESE (Continued)

2667
Gallup, W. D. and Norris, L. C. ASSIMILATION AND STORAGE OF MANGANESE IN THE DEVELOPING EMBRYO AND GROWING CHICK. Poultry Sc., 1939, 18: 99-105. 5 refs. Abstracted in: Chem. Abstr., 1939, 33: 4641[4]. Tibiae and femurs were included in the analyses.

2668
Gallup, W. D. and Norris, L. C. ESSENTIALNESS OF MANGANESE FOR THE NORMAL DEVELOPMENT OF BONE. Science, 1938, 87: 18-19. 13 refs. Abstracted in: Chem. Abstr., 1938, 32: 1773[9]; Biol. Abstr., Balt., 1938, 12: No. 2751.

2669
Kamimura, T. THE INFLUENCE OF MANGANESE ON THE GROWTH OF BONE. J. Orient. M., Dairen, 1938, 29: 25. An abstract. In young rabbits receiving 0.5gr.-6g. manganese per kilo daily for 75 days there was retardation of bone growth, premature ossification of the cartilage of the epiphysis, and disappearance of the spongious trabecula of primary and secondary bone sooner than usual.

2670
Miller, R. C., Keith, T. B., McCarty, M. A. and Thorp, W. T. S. MANGANESE AS A POSSIBLE FACTOR INFLUENCING THE OCCURRENCE OF LAMENESS IN PIGS. Proc. Soc. Exp. Biol., N. Y., 1940, 45: 50-51. Abstracted in: Biol. Abstr., Balt., 1941, 15: No. 3913.

2671
Norris, L. C., Gallup, W. D. and Caskey, C. D. THE ROLE OF MANGANESE IN BONE DEVELOPMENT. J. Nutrit., 1938, 15: Proc. 14. An abstract.

2672
*Schweitzer, C. S. THE EFFECT OF MANGANESE ON CALCIFICATION IN THE GROWING RAT IN THE PRESENCE AND ABSENCE OF VITAMIN D. 84p. Ann Arbor, Mich., 1941. (Univ. microfilms, Pub. No. 273).

2673
Skinner, J. T., Peterson, W. H. and Steenbock, H. THE MANGANESE METABOLISM OF THE RAT. J. Biol. Chem., 1931, 90: 65-80. 20 refs. Abstracted in: Chem. Abstr., 1931, 25: 988.

2674
Wachtel, L. W., Elvehjem, C. A. and Hart, E. B. THE PHYSIOLOGY OF MANGANESE IN THE RAT. Am. J. Physiol., 1943, 140: 72-82. 24 refs. Abstracted in: Chem. Abstr., 1944, 38: 4057. "... analytical determinations on manganese-deficient animals were made for the purpose of arriving at gross biochemical changes.... Blood, bone, enzymatic, metabolic, and endocrinal studies were carried out, and the results and interpretations of these results are reported in detail."

2675
Wilgus, H. S., Jr., Norris, L. C. and Heuser, G. F. THE ROLE OF MANGANESE AND CERTAIN OTHER TRACE ELEMENTS IN THE PREVENTION OF PEROSIS. J. Nutrit., 1937, 14: 155-167. 18 refs.

See:

738	1935	1939	2024	2090
2269	2596	2611		

TRACE ELEMENTS - PORPHYRINS

2676
Dohne, E. E. and Kammerer, H. UNTERSUCHUNG AM KNOCHENSYSTEM JUNGER TIERE NACH INJEKTION VON VERSCHIEDENEN FLUORESCIERENDEN UND NICHT-FLUORESCIERENDEN FARBSTOFFEN. (ALS BEITRAG ZUR KLÄRUNG DER FRAGE, OB DIE ABLAGERUNG VERSCHIEDENER PORPHYRINE, BESONDERS AN DEN VERKALKSZONEN DES KNOCHENS SIN SPEZIFISCH PHYSIOLOGISCHEN VORGANG DARSTELLT. VORLÄUFIGE MITTEILUNG). Verh. Deut. Ges. inn. Med., 1933, 45: 86-88. 7 refs.

2677
Fikentscher, R., Fink, H. and Emminger, E. UNTERSUCHUNGEN AN KNOCHEN WACHSENDER SÄUGETIERE NACH INJEKTION VERSCHIEDENARTIGER PORPHYRINE. VORLÄUFIGE MITTEILUNG. Klin. Wschr., 1931, 10: 2036. 8 refs.

2678
Fikentscher, R., Fink, H. and Emminger, E. UNTERSUCHUNGEN AN KNOCHEN WACHSENDER SÄUGETIERE NACH INJEKTION VERSCHIEDENARTIGER PORPHYRINE. Virchows Arch., 1933, 287: 764-783. 13 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1933-34, 3: No. 2092.

2679
Fink, H. and Hoerburger, W. ÜBER DIE OCHRONOSE DER SCHLACHTTIERE. II. ISOLIERUNG VON KRYSTALLISIERTEM UROPORPHRIN AUS DEN KNOCHEN. IDENTITÄTSBEWEIS MIT HILFE DER PH-FLUORESCENZKURVEN DURCH ANALYSE. Zschr. physiol. Chem., 1931, 202: 8-22. 15 refs.

2680
Paul, K. G., Engström, A. and Engfeldt, B. LOCALIZATION OF PORPHYRINS IN BONE TISSUE IN A CASE OF PORPHYRIA CUTANEA TARDA. J. Clin. Path., Lond., 1953, 6: 135-139. 29 refs. "In a case of porphyrinuria cutanea tarda only uroporphyrin III has been isolated from the bone tissue. This porphyrin is microscopically localized to certain Haversian systems and structures where the ionic milieu is well suited for the deposition. The precise localization of the porphyrins is discussed from the point of view of bone physiology."

2681
Tanzi, B. IL RAPPORTO FOSFORO/AZOTO (P/N) E CALCIO/AZOTO (CA/N) NELLE OSSA DI RATTI EMATOPORFIRINIZZATI. Ateneo Parm., 1939, 11: 265-282. 17 refs.

TRACE ELEMENTS - RADIUM

2682
Calhoun, J. A. and Aub, J. C. THE DEPOSITION OF RADIUM SALTS IN BONES AND THEIR RELATION TO CALCIUM METABOLISM. J. Clin. Invest., 1937, 16: 664.

2683
Hoecker, F. E. and Roofe, P. G. STRUCTURAL DIFFERENCES IN BONE MATRIX ASSOCIATED WITH METABOLIZED RADIUM. Radiology, 1949, 52: 856-865. Discussion: p. 864-865. 5 refs. The distribution of radium in certain rat bones containing metabolically deposited radium is described.

2684
Hoecker, F. E. and Roofe, P. G. STUDIES OF RADIUM IN HUMAN BONE. Radiology, 1951, 56: 89-98. 5 refs. Illustrates and describes "certain characteristic microscopic patterns of radium distribution in the matrix of human bones, to correlate these with the microscopic structure of the bone..."

2685
Looney, W. B. SKELETAL ROENTGENOGRAPHIC, HISTOPATHOLOGICAL AND AUTORADIOGRAPHIC FINDINGS IN HUMANS TWENTY YEARS AFTER THE ADMINISTRATION OF RADIUM CHLORIDE. Fed. Proc., Balt., 1953, 12: No. 1297. An abstract. From the findings, "It is evident that some relation exists between radium deposition and histopathological change, however, histopathological changes were found in the absence of radium. This interrelation is complex. It is probably the end result of many intermediate factors such as trauma blood supply, etc. so that when the reparative processes can no longer be maintained at a rate equal to the destructive processes permanent changes occur."

TRACE ELEMENTS - RADIUM (Continued)

2686
Looney, W. B. and Woodruff, L. A. INVESTIGATION OF RADIUM DEPOSITION IN HUMAN SKELETON BY GROSS AND DETAILED AUTORADIOGRAPHY. A.M.A. Arch. Path., 1953, 56: 1-12. 12 refs. Abstracted in: Excerpta med., Sect. 5, 1954, 7: No. 907.

2687
Norris, W. P. and Kisieleski, W. COMPARATIVE METABOLISM OF RADIUM, STRONTIUM, AND CALCIUM. Sympos. Quant. Biol., 1948, 13: 164-172. 38 refs. Discussion: p. 171-172. Abstracted in: Chem. Abstr., 1949, 43: 4755g.

TRACE ELEMENTS - STRONTIUM

see also TRACE ELEMENTS

2688
Comar, C. L., Lotz, W. E. and Boyd, G. A. AUTORADIOGRAPHIC STUDIES OF CALCIUM, PHOSPHORUS, AND STRONTIUM DISTRIBUTION IN BONE OF GROWING PIGS. Am. J. Anat., 1952, 90: 113-129. pl. 16 refs. Abstracted in: Brit. Abstr., 1953, AIII: p. 5; Excerpta med., Sect. 2, 1953, 6: No. 5945.

2689
Copp, H. THE ROLE OF NUCLEAR PHYSICS IN MEDICINE AND DENTISTRY. II. USE OF RADIOACTIVE TRACERS IN THE STUDY OF BONES AND TEETH. Am. J. Orthodont., 1947, 33: Oral Surg., 109-115. Abstracted in: Excerpta med., Sect. 9, 1948, 2: No. 5027.

2690
Hodge, H. C., Gavett, E. and Thomas, I. THE ADSORPTION OF STRONTIUM AT FORTY DEGREES BY ENAMEL,DENTIN, BONE, AND HYDROXYAPATITE AS SHOWN BY THE RADIOACTIVE ISOTOPE. J. Biol. Chem., 1946, 163: 1-6. 18 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1946-47, 16: No. 1983; Biol. Abstr., Balt., 1946, 20: No. 15470.

2691
Hodges, R. M., MacDonald, N. S., Nusbaum, R., Stearns, R., Ezmirlian, F., Spain, P. and McArthur, C. STRONTIUM CONTENT OF HUMAN BONES. J. Biol. Chem., 1950, 185: 519-524. 12 refs. Abstracted in: Chem. Abstr., 1950, 44: 10870c; Excerpta med., Sect. 2, 1951, 4: No. 2529.

2692
Jones, D. C. and Copp, D. H. THE METABOLISM OF RADIOACTIVE STRONTIUM IN ADULT, YOUNG AND RACHITIC RATS. J. Biol. Chem., 1951, 189: 509-514. 13 refs. Abstracted in: Excerpta med., Sect. 2, 1951, 4: No. 5254; Biol. Abstr., Balt., 1951, 25: No. 30273.

2693
Jones, D. C. and Copp, D. H. STUDIES OF BONE METABOLISM WITH THE AID OF RADIOACTIVE STRONTIUM. 14p. U. S. Atomic Energy Commission, Oak Ridge, Tenn., 1948. (AECD-1962). 15 refs.

2694
Jowsey, J., Owen, M. and Vaughan, J. MICRORADIOGRAPHS AND AUTORADIOGRAPHS OF CORTICAL BONE FROM MONKEYS INJECTED WITH ^{90}SR. Brit. J. Exp. Path., 1953, 34: 661-667. 13 refs. Findings in cortical bone of the tibia are described. ^{90}Sr was concentrated in areas of bone growth and distributed unevenly around building sites, the highest concentration in these sites was assumed to have occurred when osteoblastic activity predominated at the time of administration.

2695
Jowsey, J., Rayner, B., Tutt, M. and Vaughan, J. THE DEPOSITION OF ^{90}SR IN RABBIT BONES FOLLOWING INTRAVENOUS INJECTION. Brit. J. Exp. Path., 1954, 34: 384-391. 3 pl. 4 refs. The authors, "using an autoradiographic technique, studied the localization of intravenous ^{90}Sr in the bones of rabbits. In both young (1 day old) and older animals (5-7 weeks) concentration occurred in areas of active growth, though in the younger group much subsequent diffuse redistribution took place. In the older group the possible effect of persistent localisation on tumor production is considered." - Ibid. Survey of papers, p.(i).

2696
Kidman, B., Rayner, B., Tutt, M. L. and Vaughan, J. M. AUTORADIOGRAPHIC STUDIES OF THE DEPOSITION OF SR^{89} IN RABBIT BONES. J. Path. Bact., Lond., 1952, 64: 453-459. 2 pl. 24 refs. Abstracted in: Nuclear Sc. Abstr., 1953, 7: No. 62; Biol. Abstr., Balt., 1953, 27: No. 9664. "The localization of certain isotopes in areas of active bone growth, as well as their more diffuse distribution throughout mineralised bone, suggests that ionic exchanges on the surface of bone crystals alone will not account for the uptake of these isotopes."

2697
Kidman, B., Tutt, M. L. and Vaughan, J. M. THE RETENTION AND EXCRETION OF RADIOACTIVE STRONTIUM AND YTTRIUM (SR^{89}, SR^{90} AND Y^{90}) IN THE HEALTHY RABBIT. J. Path. Bact., Lond., 1950, 62: 209-227. 17 refs. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 4271; Excerpta med., Sect. 2, 1951, 4: No. 5673.

2698
MacDonald, N. S., Ezmirlian, F., Spain, P. and McArthur, C. THE ULTIMATE SITE OF SKELETAL DEPOSITION OF STRONTIUM AND LEAD. J. Biol. Chem., 1951, 189: 387-399. 19 refs. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 24028; Chem. Abstr., 1951, 45: 5283d. "Although the evidence sheds little light on the initial phases by which Sr and Pb ions are accumulated in bone, it is concluded that some, and perhaps most, of the cations ultimately become part of the crystalline structure of the bone salt. The length of time during which such material remains fixed depends upon the rate of bone resorption and reformation."

2699
MacDonald, N. S., Nusbaum, R. E., Stearns, R., Ezmirlian, F., McArthur, C. and Spain, P. THE SKELETAL DEPOSITION OF NON-RADIOACTIVE STRONTIUM. J. Biol. Chem., 1951, 188: 137-143. 19 refs. Abstracted in: Excerpta med., Sect. 2, 1951, 4: No. 5670; Biol. Abstr., Balt., 1951, 25: No. 13162.

2700
Pecher, C. BIOLOGICAL INVESTIGATIONS WITH RADIOACTIVE CALCIUM AND STRONTIUM. Proc. Soc. Exp. Biol., N. Y., 1941, 46: 86-91. 7 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1941-42, 11: No. 382. Distribution of the two elements in different tissues; including bone was studied.

2701
Pecher, C. and Pecher, J. RADIO-CALCIUM AND RADIO-STRONTIUM METABOLISM IN PREGNANT MICE. Proc. Soc. Exp. Biol., N. Y., 1941, 46: 91-94. "It appears that part of the calcium and strontium previously fixed in the skeleton of mice migrates to the foetus during the last days of pregnancy and to the offspring through the milk. When radioactive strontium lactate is injected intravenously into lactating mice and cows, appreciable amounts are excreted in the milk."

TRACE ELEMENTS - STRONTIUM (Continued)

2702
Robison, R., Law, K. A. O'D. and Rosenheim, A. H. DEPOSITION OF STRONTIUM SALTS IN HYPERTROPHIC CARTILAGE IN VITRO. Biochem. J., Lond., 1936, 30: 66-68. 6 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1936-37, 6: No. 637.

2703
Shorr, E. and Carter, A. C. THE USEFULNESS OF STRONTIUM AS AN ADJUVANT TO CALCIUM IN THE REMINERALIZATION OF THE SKELETON IN MAN. Bull. Hosp. Joint Dis., 1952, 13: 59-66. 28 refs. Abstracted in: Excerpta med., Sect. 5, 1953, 6: No. 1653; Chem. Abstr., 1953, 47: 728[i].

2704
Sobel, A. E., Goldenberg, H. and Hanok, A. CALCIFICATION. IV. INFLUENCE OF STRONTIUM AND MAGNESIUM IONS ON CALCIFICATION IN VITRO. Proc. Soc. Exp. Biol., N. Y., 1951, 78: 716-718. 11 refs. "The intense inhibition of calcification in vitro by strontium ions requires the presence of magnesium ions. The injury to the calcifying mechanism in rickets due to strontium is associated with the presence of magnesium ions. The results suggest the importance of studying the influence of various ions on the calcifying mechanism both in the presence and absence of magnesium."

2705
Tutt, M., Kidman, B., Rayner, B. and Vaughan, J. THE DEPOSITION OF SR^{89} IN RABBIT BONES FOLLOWING INTRAVENOUS INJECTION. Brit. J. Exp. Path., 1952, 33: 207-215. 12 refs. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 9668; Chem. Abstr., 1952, 46: 10410[g].

2706
Tweedy, W. R. THE EFFECT OF PARATHYROID EXTRACT ON THE DISTRIBUTION, RENTENTION, AND EXCRETION OF LABELED STRONTIUM. J. Biol. Chem., 1945, 161: 105-113. 6 refs. Abstracted in: Chem. Abstr., 1946, 40: 1232[9].

2707
Van Middleton, L,, Copp, D. H. and Hamilton, J. G. UPTAKE OF PLUTONIUM, YTTRIUM AND STRONTIUM BY THE CALLUS OF HEALING FRACTURES. Fed. Proc., Balt., 1947, 6: 219. An abstract.

See:

32	33	1310	2597	2604
2606	2651	2687		

TRACE ELEMENTS - URANIUM

2708
Amprino, R. OBSERVATIONS ON THE FIXATION IN VITRO OF URANIUM TO SECTIONS OF BONE. Experientia, Basel, 1953, 9: 291-293. 7 refs. Abstracted in: Chem. Abstr., 1954, 48: 1570[c]; Nuclear Sc. Abstr., 1953, 7: No. 5911. Autoradiographic studies of ground sections of bone treated with solutions of uranium and radiocalcium indicated that the distribution of both elements is essentially the same but that differences exist in the fixation of the cations, particularly in the ground substance where uranium unites not only with the mineral crystals but also with the organic components of the bone matrix.

2709
Hodge, H. C. THE ROLE OF EXCHANGE IN CALCIUM AND PHOSPHATE ADSORPTION BY THE CALCIFIED TISSUES. Tr. Conf. Metab. Interrelat., 1949, 1.Conf., 49-65. Conference discussion: p. 61-65. 22 refs.

2710
Neuman, M. W. and Neuman, W. F. THE DEPOSITION OF URANIUM IN BONE. II. RADIOAUTOGRAPHIC STUDIES. J. Biol. Chem., 1948, 175: 711-714. 2 pl. 7 refs. "Radioautographs of bone containing U^{233} showed this element to be deposited only in the mineral portions and to be particularly concentrated on surfaces adjacent to the circulation and in areas of calcification. Once fixed, little redistribution of uranium occurred. As the normal growth and calcification processes continued, new bone accumulated over the lines of deposition and the resorption of bone to some extent was inhibited, probably because of the insolubility of U-impregnated bone salt."

2711
Neuman, W. F., Fleming, R. W., Dounce, A. L. Carlson, A. B., O'Leary, J. and Mulryan, B. J. THE DISTRIBUTION AND EXCRETION OF INJECTED URANIUM. J. Biol. Chem., 1948, 173: 737-748. 16 refs. Abstracted in: Biol. Abstr., Balt., 1948, 22: No. 20275; Chem. Abstr., 1948, 42: 4678[g].

2712
Neuman, W. F., Neuman, M. W. and Mulryan, B. J. FAILURE OF NONISOTOPIC URANIUM TO INHIBIT RESORPTIVE PROCESSES IN RAT FEMUR. IN: PHARMACOLOGY AND TOXICOLOGY OF URANIUM COMPOUNDS. (Voegtlin, C. and Hodge, H. C., eds.) New York, McGraw-Hill, 1953. (National Nuclear Energy series, Manhattan Project Technical Sect., Div. 6, v.1, pt. 4, p. 1958-1959.

2713
Neuman, W. F., Neuman, M. W. and Mulryan, B. J. THE DEPOSITION OF URANIUM IN BONE. I. ANIMAL STUDIES. J. Biol. Chem., 1948, 175: 705-709. 7 refs. "The deposition of injected uranium in bone was found to be directly related to growth activity. Young rats, irrespective of sex, showed a greater U concentration in bone than did older animals."

2714
Neuman, W. F., Neuman, M. W., Main, E. R. and Mulryan, B. J. THE DEPOSITION OF URANIUM IN BONE. III. THE EFFECT OF DIET. J. Biol. Chem., 1948, 175: 715-719. 9 refs. "The effect of several experimental diets on the rate of mobilization of skeletal uranium in rats was tested. Alkaline and acidic diets were without effect; a rachitogenic diet increased the rate of mobilization. The half life of skeletal uranium in the rat was found to be of the order of 50-60 days."

2715
Neuman, W. F., Neuman, M. W., Main, E. R. and Mulryan, B. J. THE DEPOSITION OF URANIUM IN BONE. IV. ADSORPTION STUDIES IN VITRO. J. Biol. Chem., 1949, 179: 325-333. 13 refs. Abstracted in: Biol. Abstr., Balt., 1949, 23: No. 23967; Chem. Abstr., 1949, 43: 8481[c].

2716
Neuman, W. F., Neuman, M. W., Main, E. R. and Mulryan, B. J. THE DEPOSITION OF URANIUM IN BONE. V. ION EXCHANGE STUDIES. J. Biol. Chem., 1949, 179: 335-340. 8 refs. Abstracted in: Biol. Abstr., Balt., 1949, 23: No. 23968.

2717
Neuman, W. F., Neuman, M. W., Main, E. R. and Mulryan, B. J. THE DEPOSITION OF URANIUM IN BONE. VI. ION COMPETITION STUDIES. J. Biol. Chem., 1949, 179: 341-348. 11 refs. Abstracted in: Biol. Abstr., Balt., 1949, 23: No. 23969.

VITAMIN INFLUENCE

2718
Hertz, J. STUDIES ON THE HEALING OF FRACTURES, WITH SPECIAL REFERENCE TO THE SIGNIFICANCE OF THE VITAMIN CONTENT OF THE DIET. Acta path. microb. scand., 1936, Suppl. 28. 286p. 15 pl. 316 refs. Abstracted in: Biol. Abstr., Balt., 1937, 11: No. 16027; Chem. Abstr., 1936, 30: 7675[7]. A comprehensive review with a report of experiments with rats.

2719
Krockert, G. HISTOLOGISCHE UNTERSUCHUNG DER CALLUSBILDUNG NACH VITAMIN- UND KALKZUFUHR. Deut. Zschr. Chir., 1942, 255: 409-412. 2 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1943-44, 13: No. 147.

2720
Krockert, G.. LÄSST SICH DURCH VITAMINGABEN EINE VERSTÄRKTE MINERALISATION BEI DER FRAKTURREGENERATION IM RÖNTGENBILD BEOBACHTEN? Deut. Zschr. Chir., 1942, 255: 398-408. Approx. 25 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1943-44, 13: No. 147.

2721
Masmonteil, F. and Leuret, J. RÔLE DES VITAMINES DANS L'APPAREIL DE CROISSANCE. (ESSAI DE PATHOGÉNIE DES CHONDROSES). Bull. Soc. chir. Paris, 1946, 37: 72-77. Abstracted in: Excerpta med., Sect. 9, 1949, 3: No. 4913. "The authors recall the three layers of epiphyseal cartilage for the development of each of which they believe a specific vitamin and special chemical elements are necessary: vitamin A for the first; vitamin D, Ca and P for the second; vitamin C, with Fe and Ca, for the third. Deficiency of these leads to scurvy, rickets, and epiphyseal degeneration. For the transformation of hyaline in ossifying cartilage, vitamin B and Mn are necessary. ... The epiphyseal cartilage does not take an active part in bone growth but is rather a passive barrier, a 'cliff' against the push of growth coming from the shaft." - Excerpta med.

2722
Wolbach, S. B. and Bessey, O. A. TISSUE CHANGES IN VITAMIN DEFICIENCIES. Physiol. Rev., 1942, 22: 233-289. 345 refs. Abstracted in: Biol. Abstr., Balt., 1943, 17: No. 13684. A comprehensive review of the morphological manifestations seen in deficiencies of vitamins, A, C, D, E, K and "M".

See:

1134 2198 2660

VITAMIN INFLUENCE - VITAMIN A

2723
THE ACTION OF VITAMIN A IN CALCIFICATION. South Afr. M. J., 1949, 23: 787-788. 12 refs. A short report of the views held on the action of vitamin A.

2724
Bomskov, C. and Seemann, G. ÜBER EINE WIRKUNG DES VITAMIN A AUF DEN MINERALHAUSHALT. Zschr. ges. exp. Med., 1933, 89: 771-779. 4 refs. Abstracted in: Biol. Abstr., Balt., 1936, 10: No. 3268.

2725
Cappellin, M. and Crepax, P. AZIONE DELLA VITAMINA A IN FORTI DOSI SUL SISTEMA OSSEO DEL RATTO ALBINO. Boll. Soc. ital. biol. sper., 1950, 26: 1495-1497. 8 refs. Abstracted in: Chem. Abstr., 1951, 45: 9638g. Rats were given by stomach tube, daily doses of vitamin A varying between 10,000 and 50,000 IU per animal per day. Doses of 10,000 IU were tolerated but at 20,000 IU and above complications appeared, increasing in proportion to the dose. X-rays revealed spontaneous multiple fractures. Anatomical studies showed marked anemia of all viscera, particularly liver and kidneys, considerable enlargement of the adrenals and atrophy of the thymus. Microscopic analysis of the long bones showed, in addition to copious fibrous callus formation at fracture sites, gross changes in epiphyseal cartilage, in diaphyseal bone and in bone marrow.

2726
Collazo, J. A. and Sánchez Rodriguez, J. HYPERVITAMINOSE A. II. EXOPHTHALMUS UND SPONTANFRAKTUREN. Klin. Wschr., 1933, 12: 1768-1771. 22 refs.

2727
Copp, D. H. and Greenberg, D. M. STUDIES ON BONE FRACTURE HEALING. I. EFFECT OF VITAMINS A AND D. J. Nutrit., 1945, 29: 261-267. 9 refs. Abstracted in: Biol. Abstr., Balt., 1945, 19: No. 15752; Chem. Abstr., 1945, 39: 3043[5].

2728
Dejust, L. H. ACTION LOCALE DES VITAMINES. ERGOSTÉROL ET CAROTÈNE. Rev. path. comp., Par., 1934, 34: 1771-1777. 13 refs. Abstracted in: Chem. Abstr., 1936, 30: 4547[2].

2729
Emerique, L. L'AVITAMINOSE A ET LA COMPOSITION CHIMIQUE DE L'ANIMAL. C. rend. Acad. sc., 1934, 199: 240-242. 4 refs. Abstracted in: Biol. Abstr., Balt., 1934, 9: No. 13735.

2730
Fell, H. B. THE EFFECT OF VITAMIN A ON ORGAN CULTURES OF SKELETAL AND OTHER TISSUE. Tr. Conf. Connective Tissues, 1953, 4.meet., 142-184. pl. 11 refs.

2731
Fell, H. B. and Mellanby, E. THE EFFECT OF HYPERVITAMINOSIS A ON EMBRYONIC LIMB-BONES CULTIVATED IN VITRO. J. Physiol., Lond., 1952, 116: 320-349. 3 pl. 28 refs. Findings indicate that vitamin A has a direct action on embryonic bone tissue.

2732
Fell, H. B. and Mellanby, E. EFFECT OF HYPERVITAMINOSIS A ON FOETAL MOUSE BONES CULTIVATED IN VITRO; PRELIMINARY COMMUNICATION. Brit. M. J., 1950, 2: 535-539. 16 refs. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 7505; Chem. Abstr., 1952, 46: 7627g.

2733
Fell, H. B. and Mellanby, E. THE EFFECT OF VITAMIN A ON SKELETAL TISSUE CULTIVATED IN VITRO. J. Physiol., Lond., 1951, 115: Proc., 4-6. 3 refs. "The evidence indicates that the vitamin A is a main controlling factor in the development and growth of bone, and that the concentration in the tissues necessary for the proper development in any species of animal must be within fairly narrow limits."

2734
Imura, T. UNTERSUCHUNGEN ÜBER DIE EXPERIMENTELLE RACHITIS. Tr. Jap. Path. Soc., 1930, 20: 44-49. Various groups of young rats were fed vitamin A and vitamin D deficient diets. It was concluded that vitamin A is necessary for elongation of the bones but does not influence calcification while vitamin D does not effect elongation but is necessary for calcification.

2735
Irving, J. T. THE EFFECTS OF AVITAMINOSIS AND HYPERVITAMINOSIS A UPON THE INCISOR TEETH AND INCISAL ALVEOLAR BONE OF RATS. J. Physiol., Lond., 1949, 108: 92-101. pl. 19 refs. Abstracted in: Biol. Abstr., Balt., 1949, 23: No. 23906; Nutrit. Abstr., Aberdeen, 1949-50, 19: No. 330. Findings suggest that in bone formation, vitamin A acts solely upon the osteoblasts. Excessive amounts in the diet depress the action of these cells while a lack of the vitamin causes them to engage in a disorderly activity. The response of the osteoclasts in avitaminosis is secondary and is an attempt to prevent excessive bone formation.

2736
Khain-Makarova, G. A. ZNACHENIE VITAMINOV A I GRUPPY B DLIA SKELETNOGO ROSTA. Arkh. pat., Moskva, 1953, 15: No. 2, 66-72. 9 refs. Abstracted in: Chem. Abstr., 1953, 47: 8201^{c}. "Experiments with rats showed that with deficiencies in ... vitamins [A, B_1 and B_2] in the diet there is retardation of endochondral growth. Excess of vitamin A causes the reverse process of acceleration of aging and dystrophy of the cartilage cells, but this vitamin does not have the specificity ascribed to it by Wolbach (J. Bone Surg., 1947) and Mellanby (J. Physiol., 1947). Deficiencies in B_1 and B_2 vitamins and protein starvation give the same results as A deficiency." - Chem. Abstr.

2737
Klein Obbink, H. J. and Nieman, C. HYPERVITAMINOSIS-A. Ned. tschr. geneesk., 1953, 97: 872-877. 2 pl. Approx. 25 refs. Abstracted in: Chem. Abstr., 1953, 47: 9438^{c}.

2738
*Kollath, W. DAS WACHSTUMSPROBLEM UND DIE FRAGE DES ZELLERSATZES IN DER VITAMINFORSCHUNG. VII. DAS VERSAGEN DES VITAMINS A ALS WACHSTUMSFAKTOR UND SEINE URACHE. Arch. exp. Path., Lpz., 1933, 170: 285-291. Abstracted in: Nutrit. Abstr., Aberdeen, 1933-34, 3: No. 1571.

2739
Leitner, Z. A. PATHOLOGY OF VITAMIN A DEFICIENCY AND ITS CLINICAL SIGNIFICANCE. Brit. J. Nutrit., 1951, 5: 130-142. Approx. 150 refs. See particularly p. 130-132 for skeleton. Abstracted in: Excerpta,med., Sect. 5, 1953, 6: No. 1025.

2740
Maddock, C. L. and Wolbach, S. B. NITROGEN, PHOSPHORUS AND CALCIUM METABOLISM IN THE RACHITIC RAT GIVEN EXCESSIVE DOSES OF VITAMIN A. Fed. Proc., Balt., 1950, 9: 337. An abstract. "The results suggest that vitamin A acts by speeding up metabolic

2741
Maddock, C. L., Wolbach, S. B. and Maddock, S. HYPERVITAMINOSIS A IN THE DOG. J. Nutrit., 1949, 39: 117-137. pl. 39 refs. Abstracted in: Biol. Abstr., Balt., 1950, 24: No. 11872. "A litter of 5 greyhound puppies, 3 males and 2 females, 2 months of age, was used. ... No spontaneous fractures resulted, but X-ray studies revealed excessive remodelling of long bones. The dog responds, as do other laboratory animals, to excessive doses of vitamin A. This response is marked by loss of appetite, marked loss in weight..."

2742
Mellanby, E. BONE OVERGROWTH AND NERVE DEGENERATION PRODUCED BY DEFECTIVE DIET. J. Physiol., Lond., 1939, 96: Proc. 36-37. 5 refs.

2743
Mellanby, E. NUTRITION IN RELATION TO BONE GROWTH AND THE NERVOUS SYSTEM. Proc. R. Soc., Ser. B, Biol. Sc., Lond., 1944, 132: 28-46. 10 pl. 23 refs. Abstracted in: Chem. Abstr., 1944, 38: 3004^{1}; Nutrit. Abstr., Aberdeen, 1944-45, 14: No. 1054.

2744
Mellanby, E. SKELETAL CHANGES AFFECTING THE NERVOUS SYSTEM PRODUCED IN YOUNG DOGS BY DIETS DEFICIENT IN VITAMIN A. J. Physiol., Lond., 1941, 99: 467-486. pl. 13 refs. Abstracted in: Biol. Abstr., Balt., 1942, 16: No. 1146. A part of this experiment on the effect of skeletal changes on the nervous system is devoted to effects of vitamin A deficiency on bone.

2745
Mellanby, E. VITAMIN A AND BONE GROWTH: THE REVERSIBILITY OF VITAMIN A-DEFICIENCY CHANGES. J. Physiol., Lond., 1947, 105: 382-399. 8 pl. 12 refs. Abstracted in: Biol. Abstr., Balt., 1947, 21: No. 19855; Chem. Abstr., 1947, 41: 3189^{c}.

2746
Roasenda, F. and Camurati, C. MODIFICAZIONI DELLA CARTILAGINE DI ACCRESCIMENTO DELLE OSSA LUNGHE NEL RATTO ALBINO IN CARENZA ACUTA SPERIMENTALE DI VITAMINA A. Minerva ortop., Tor., 1952, 3: 174-176. 8 refs. A study of the knee joint and tibia of young rats kept on a completely vitamin A-deficient diet showed reduction of thickness of the metaphyseal cartilage, irregularity and partial absence of the stratum of hypertrophic cells, reduction of osteoblastic and osteoclastic activity and marked scantness and irregularity of osseous trabeculae. These facts were interpreted as attesting the arrest of endochondral ossification and of the exchange processes of bone. The article begins with a review of the literature.

2747
Roasenda, F. and Camurati, C. MODIFICAZIONI DELLA CARTILAGINE DI INCROSTAZIONE DEL RATTO ALBINO IN ACCRESCIMENTO NELLA CARENZA SPERIMENTALE ACUTA DI VITAMINA A. Minerva ortop., Tor., 1952, 3: 273-274. Structure and growth in vitamin A deficiency.

2748
Simola, P. E. ÜBER DIE KNOCHEN- UND ZAHNVERÄNDERUNGEN BEI A- UND B-AVITAMINOSE. Biochem. Zschr., 1932, 254: 245-250. 11 refs. Abstracted in: Biol. Abstr., Balt., 1936, 10: No. 20780; Nutrit. Abstr., Aberdeen, 1932-33, 2: No. 2643.

2749
Strauss, K. BEOBACHTUNGEN BEI HYPERVITAMINOSE A. Beitr. path. Anat., 1934, 94: 345-352. 5 refs. Abstracted in: Biol. Abstr., Balt., 1935, 9: No. 11610; Nutrit. Abstr., Aberdeen, 1934-35, 4: No. 3260.

VITAMIN INFLUENCE - VITAMIN A (Continued)

2750
Van Metre, J. E., Jr. THE INFLUENCE OF HYPERVITAMINOSIS A ON BONE GROWTH. Bull. Johns Hopkins Hosp., 1947, 81: 305-311. 10 refs. Abstracted in: Biol. Abstr., Balt., 1948, 22: No. 21041; Excerpta med., Sect. 3, 1949, 3: No. 82.

2751
VITAMIN A AND BONE GROWTH. (Editorial). J. Am. M. Ass., 1947, 134: 1019-1020. 2 refs. A short review discussing Mellanby and Wolbach's work.

2752
Wolbach, S. B. VITAMIN-A DEFICIENCY AND EXCESS IN RELATION TO SKELETAL GROWTH. J. Bone Surg., 1947, 29: 171-192. Also in: Proc. Inst. M. Chicago, 1946, 16: 118-145. 20 refs. Abstracted in: Biol. Abstr., Balt., 1948, 22: No. 24280; Excerpta med., Sect. 9, 1948, 2: No. 2812.

2753
Wolbach, S. B. and Hegsted, D. M. HYPERVITAMINOSIS A AND THE SKELETON OF GROWING CHICKS. A.M.A. Arch. Path., 1952, 54: 30-38. 7 refs. Abstracted in: Biol. Abstr., Balt., 1953, 27: No. 5934; Excerpta med., Sect. 5, 1953, 6: No. 981. "As in mammals, hypervitaminosis A in growing chicks accelerates all histological sequences concerned in bone growth in conformity with the normal growth patterns.

2754
Wolbach, S. B. and Hegsted, D. M. HYPERVITAMINOSIS A IN YOUNG DUCKS; THE EPIPHYSEAL CARTILAGE. A.M.A. Arch. Path., 1953, 55: 47-54. 8 refs. Abstracted in: Excerpta med., Sect. 5, 1953, 6: No. 3805; Nutrit. Abstr., Aberdeen, 1953, 23: No. 4150. Young ducks fed excessive doses of vitamin A in their diet for 2 to 3 weeks were then killed and their epiphyseal cartilages compared with those of control ducks. Many evidences of accelerated endochondral ossification were found in the hypervitaminosis A ducks. On the basis of earlier experiments, it was concluded that the response was exactly the same as that in chicks and mammals and that "the only differences are quantitative..."

2755
Wolbach, S. B. and Hegsted, D. M. VITAMIN A DEFICIENCY IN THE DUCK. SKELETAL GROWTH AND THE CENTRAL NERVOUS SYSTEM. A.M.A. Arch. Path., 1952, 54: 548-563. 14 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1953, 23: No. 2840; Chem. Abstr., 1953, 47: 4442a.

2756
Wolbach, S. B. and Maddock, C. L. RESPONSE OF THE RACHITIC METAPHYSIS IN THE RAT TO EXCESSIVE ADMINISTRATION OF VITAMIN A. Fed. Proc., Balt., 1949, 8: 376. An abstract.

See:

773 1344 1367 1515 2008
2444 2636 2911

VITAMIN INFLUENCE - VITAMIN B COMPLEXES

2757
BOW LEGS IN DUCKS IN NIACIN DEFICIENCY. Nutrit. Rev., 1953, 11: 173-174. A review of dietary experiments on ducks which revealed that the addition of adequate niacin to the diet prevents bow legs.

2758
Camurati, C. and Tessarolo, G. LA METACROMASIA DELLA CARTILAGINE DI ACCRESCIMENTO NELLA AVITAMINOSI B TOTALE CRONICA. Clin. ortop., Parma, 1952, 4: 487-490. 3 refs. Abstracted in: Excerpta med., Sect. 9, 1954, 8: No. 615.

2759
Frandsen, A. M. GROWTH AND TRANSFORMATION OF THE MANDIBULAR JOINT IN THE RAT. V. THE EFFECT OF PANTOTHENIC ACID DEFICIENCY FROM BIRTH. Oral. Surg., 1953, 6: 892-897. 11 refs. Abstracted in: Brit. Abstr. M. Sc., 1954, p. 643. "... while the marked inanition which accompanied this deficiency may explain retardation of chondrogenesis and osteogenesis, it is not likely to account for the striking changes seen in the later stages."

2760
Gorlin, R. J. and Levy, B. M. CHANGES IN THE MANDIBULAR JOINT AND PERIODONTIUM OF VITAMIN B COMPLEX DEFICIENT RATS AND THE COURSE OF REPAIR. J. Dent. Res., 1951, 30: 337-345. 3 refs. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 36788A.

2761
Julesz, M. and Winkler-Julesz, E. B1 VITAMIN HATÁSA IVARÉRÉSBEN LEVŐ NŐSTÉNY NYULAK ÉS PATKÁNYOK HYPOPHYSISÉRE ÉS CSONTOSODÁSÁRA. Orv. lap., 1946, 2: 582-586. 8 refs. Abstracted in: Chem. Abstr., 1948, 42: 8896a; Biol. Abstr., Balt., 1947, 21: No. 21811.

2762
Kieny, M. ACTION DE L'ACIDE PARA-AMINOBENZOÏQUE SUR LA CROISSANCE DU TIBIA CARTILAGINEUX D'EMBRYON DE POULET EN CULTURE IN VITRO. C. rend. Acad. sc., 1953, 236: 1920-1922. Embryonic chick tibias cultured in a synthetic medium of 9 amino acids showed only slight linear growth and no increase in weight. When paraaminobenzoic acid was added the tibias showed marked increase in length and weight. Although paraaminobenzoic acid alone did not promote growth it was believed to act as a catalyzer when added to the culture medium.

2763
Levy, B. M. THE EFFECT OF RIBOFLAVIN DEFICIENCY ON THE GROWTH OF THE MANDIBULAR CONDYLE OF MICE. Oral Surg., 1949, 2: 89-96. Abstracted in: Chem. Abstr., 1950, 44: 8434g; Biol. Abstr., Balt., 1949, 23: No. 20715.

2764
Levy, B. M. and Silberberg, R. EFFECT OF RIBOFLAVIN DEFICIENCY ON ENDOCHONDRAL OSSIFICATION OF MICE. Proc. Soc. Exp. Biol., N. Y., 1946, 63: 355-360. 4 refs. Abstracted in: Excerpta med., Sect. 2, 1948, 1: No. 538; Nutrit. Abstr., Aberdeen, 1947-48, 17: No. 421.

2765
Levy, B. M. and Silberberg, M. INHIBITION OF ENDOCHONDRAL OSSIFICATION IN PANTOTHENIC ACID DEFICIENCY. Proc. Soc. Exp. Biol., N. Y., 1946, 63: 380-383. Abstracted in: Nutrit. Abstr., Aberdeen, 1947-48, 17: No. 458. In growing mice, pantothenic acid was found essential for growth of the skeleton but in the adult mouse, deprived of pantothenic acid, no skeletal changes were observed.

2766
Luyken, R. LACTOFLAVIN-DEFICIENCY AND BONAL STRUCTURE. Arch. néerl. physiol., 1946, 28: 230-231. 2 pl. 1 ref. Abstracted in: Biol. Abstr., Balt., 1949, 23: No. 14434. Chem. Abstr., 1949, 43: 7101a.

VITAMIN INFLUENCE - VITAMIN B COMPLEXES
(Continued)

2767
McQueeney, A. J., Ashburn, L. L., Daft, F. S. and Faulkner, R. TISSUE CHANGES AND SODIUM BALANCE IN PANTOTHENIC ACID-DEFICIENT RATS. Endocrinclogy, 1947, 41: 441-450. 32 refs. Abstracted in: Excerpta med., Sect. 5, 1949, 2: No. 1343; Biol. Abstr., Balt., 1948, 22: No. 15954. Changes in the adrenals, thymus lymph nodes, bone and marrow were studied.

2768
Masella, T. INFLUENZA DELLA LATTOFLAVINA E DELLA AVITAMINOSI B_2 SUL CALLO DI FRATTURA. CONTRIBUTO ISTOLOGICO. Rass. internaz. clin. ter., 1950, 30: 200-205. Abstracted in: Excerpta med., Sect. 5, 1951, 4: No. 1225.

2769
Nelson, M. M., Sulon, E., Becks, H. and Evans, H. M. CHRONIC RIBOFLAVIN DEFICIENCY IN THE RAT. I. OSSIFICATION IN THE PROXIMAL TIBIAL EPIPHYSIS. Proc. Soc. Exp. Biol., N. Y., 1947, 66: 631-635. 9 refs. Abstracted in: Excerpta med., Sect. 2, 1948, 1: No. 5453; Biol. Abstr., Balt., 1948, 22: No. 16421. "In the deficient rats the growth of the tibia was retarded and endochondral ossification was gravely impaired. Marked reduction in chondrogenesis and in capillary erosion and ossification were characteristic... Hematopoietic tissue was replaced by fat in all animals after 144 days on the deficient diet."

2770
Nelson, M. M., Sulon, E., Becks, H., Wainwright, W. W. and Evans, H. M. CHANGES IN ENDOCHONDRAL OSSIFICATION OF THE TIBIA ACCOMPANYING ACUTE PANTOTHENIC ACID DEFICIENCY IN YOUNG RATS. Proc. Soc. Exp. Biol., N. Y., 1950, 73: 31-36. 16 refs. Abstracted in: Biol. Abstr., Balt., 1950, 24: No. 17723; Chem. Abstr., 1950, 44: 4552^a.

2771
Neuburger, F. and Scholl, R. ÜBER DIE WIRKUNG VON PARENTERAL VERABREICHTEM AZETYLCHOLIN AUF QUERGESTREIFTE MUSKELN, GELENKE UND KNOCHEN. II. MITTEILUNG. Arch. exp. Path,, Lpz., 1937, 188: 64-67. Abstracted in: Chem. Abstr., 1939, 33: 4317^9.

2772
Patrick, H. and Schweitzer, G. K. THE INFLUENCE OF CERTAIN WATER-SOLUBLE VITAMINS ON PHOSPHORUS P^{32} IN BONE MINERALIZATION. Poultry Sc., 1952, 31: 750-751. 5 refs. Results from this experiment with chicks seemed to indicate that the water-soluble vitamins control the rate of exchange of phosphorus in the blood with that in the bone

2773
Roasenda, F. and Camurati, C. MODIFICAZIONI DELLA CARTILAGINE DI ACCRESCIMENTO DELLE OSSA LUNGHE NEL RATTO ALBINO IN CARENZA ACUTA DI VITAMINA B TOTALE. Minerva ortop., Tor., 1952, 3: 172-173. 5 refs. A histological study of the superior tibial metaphyseal cartilage of young rats maintained on a diet completely deficient in vitamin B showed "not only an arrest of osteogenesis but a profound and total subversion of endochondral ossification. This was apparent in the marked thinness of the epiphyseal cartilage, total lack of the stratum of hypertrophic cells, absence of young new-formed osseous trabeculae, and the extreme reduction of the osseous processes of erosion and replacement." These conditions are compared with those in vitamin A deficiency.

2774
Roasenda, F. and Camurati, C. MODIFICAZIONI DELLA CARTILAGINE DI ACCRESCIMENTO DELLE OSSA LUNGHE NEL RATTO ALBINO IN CARENZA ACUTA SPERIMENTALE DI VITAMINA B_1. Minerva ortop., Tor., 1952, 3: 170-171. 1 ref. Young rats fed a diet completely deficient in vitamin B were injected parenterally on alternate days with all the B group fractions except B_1. A study made of the knee joint and tibia of these vitamin B_1-deficient animals showed a marked arrest of activity of the epiphyseal cartilage and of the substitution processes with new-formed bone trabeculae as well as considerable undermining of the normal structure. A similarity is seen between the effect on the metaphyseal cartilage of vitamin B_1 and B complex deficiency and hypophysectomy.

2775
Roasenda, F. and Camurati, C. MODIFICAZIONI DELLA CARTILAGINE DI INCROSTAZIONE DEL RATTO ALBINO IN ACCRESCIMENTO NELLA CARENZA SPERIMENTALE ACUTA DI VITAMINA B TOTALE E B_1. Minerva ortop., Tor., 1952, 3: 275-276.

2776
Salvini, M., Feruglio, F. S. and Baruffaldi, G. LA VITAMINA PP NELLA RIPARAZIONE DELLA FRATTURA OSSEA. Boll. Soc. ital. biol. sper., 1948, 24: 982-984. 3 refs. Abstracted in: Excerpta med., Sect. 5, 1949, 2: No. 2831; Chem. Abstr., 1950, 44: 3586^h.

2777
Scartozzi, C. AZIONE DELL'ACIDO NICOTINICO (VITAMINA P.P.) SUL PROCESSO DI RIPARAZIONE DELLE FRATTURE SPERIMENTALI E SUL SISTEMA RETICOLO ISTIOCITARIO. Arch. ital. med. sper., 1940, 6: 609-628. 51 refs. Abstracted in: Biol. Abstr., Balt., 1941, 15: No. 14486.

2778
Silberberg, M., Levy, B. M. and Younger, F. SKELETAL CHANGES IN GROWING VITAMIN B COMPLEX-DEPLETED RATS AND THE COURSE OF REPAIR. Proc. Soc. Exp. Biol., N. Y., 1948, 67: 185-189. 8 refs. Abstracted in: Excerpta med., Sect. 2, 1949, 2: No. 153; Chem. Abstr., 1948, 42: 4253^d. "In growing vitamin B complex-deficient rats, there is retardation and finally, cessation of growth of cartilage and bone associated with serous atrophy of the bone marrow. The male is more sensitive to the deficiency than the female. After refeeding a stock diet, skeletal growth is resumed at an intensified rate resulting in early restoration of normal conditions."

2779
Silberberg, R. and Levy, B. M. SKELETAL GROWTH IN PYRIDOXINE DEFICIENT MICE. Proc. Soc. Exp. Biol., N. Y., 1948, 67: 259-263. 6 refs. Abstracted in: Biol. Abstr., Balt., 1948, 22: No. 18446; Chem. Abstr., 1948, 42: 4651^e. The histological changes in the long bones associated with the arrest of skeletal growth in pyridoxine deficient mice.

2780
Solarino, G. and Rizza, V. INFLUENZA DELL'ACIDO NICOTINICO SUL PROCESSO DI GUARIGIONE DELLE FRATTURE SPERIMENTALI. Arch. ital. med. sper., 1941, 8: 193-216. 58 refs. Abstracted in: Chem. Abstr., 1949, 43: 1472^a.

2781
Wainwright, W. W. and Nelson, M. M. EFFECT OF ACUTE PANTOTHENIC ACID DEFICIENCY ON THE TIBIA OF YOUNG RATS. J. Dent. Res., 1946, 25: 185-186. An abstract. Abstracted in: Excerpta med., Sect. 2, 1948, 1: No. 198.

VITAMIN INFLUENCE - VITAMIN B COMPLEXES
(Continued)

2782
Walker, A. R. P. CEREALS, PHYTIC ACID, AND CALCIFICATION. Lancet, Lond., 1951, 2: 244-248. Approx. 65 refs. Abstracted in: Chem. Abstr., 1952, 46: 590h.

See:

1312 1521 1906 2736 2748
2957 2969 2970

VITAMIN INFLUENCE - VITAMIN C

2783
Banks, S. W. BONE CHANGES IN ACUTE AND CHRONIC SCURVY. AN EXPERIMENTAL STUDY. J. Bone Surg., 1943, 25: 553-565. 4 refs. Abstracted in: Biol. Abstr., Balt., 1943, 17: No. 23889.

2784
Bayer, G. ÜBER DIE CHEMISCHE UND PHYSIKALISCHE BESCHAFFENHEIT DER KNOCHEN BEIM EXPERIMENTELLEN SKORBUT. Beitr. path. Anat., 1931, 87: 204-208. 5 refs. Abstracted in: Chem. Abstr., 1932, 26: 2502.

2785
Bourne, G. H. THE EFFECT OF VITAMIN C ON THE HEALING OF WOUNDS. Proc. Nutrit. Soc., Cambr., 1946, 4: 204-216. Discussion, p. 210-216. 27 refs. Abstracted in: Excerpta med., Sect. 9, 1948, 2: No. 975. A review on human scurvey and on the soft tissues and bone in experimental scurvy.

2786
Bourne, G. H. SOME EXPERIMENTS ON THE POSSIBLE RELATIONSHIP BETWEEN VITAMIN C AND CALCIFICATION. J. Physiol., Lond., 1943, 102: 319-328. 2 pl. 19 refs. Abstracted in: Biol. Abstr., Balt., 1947, 21: No. 19310; Chem. Abstr., 1944, 38: 5271^{4}.

2787
Burns, J. J., Burch, H. B. and King, C. G. THE METABOLISM OF l-C^{14}-L-ASCORBIC ACID IN GUINEA PIGS. J. Biol. Chem., 1951, 191: 501-514. 33 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1951-52, 21: No. 3543.

2788
Camurati, C. and Tessarolo, G. INFLUENZE DEL CARICO E DELLA AVITAMINOSI C SULLA CARTILAGINE DI ACCRESCIMENTO DELLE CAVIE. RICERCHE ISTOCHIMICHE. Minerva ortop., Tor., 1953, 4: 131-134. 16 refs. Findings from this histochemical study indicated that vitamin C is responsible for the cartilaginous lesions and that the suppression of the load does not modify the effects produced by avitaminosis.

2789
Camurati, C. and Tessarolo, G. RICERCHE SPERIMENTALI SUL COMPORTAMENTO DELLA METACROMASIA NELLA CARTILAGINE DI CONIUGAZIONE DELLE CAVIE IN AVITAMINOSI C ACUTA. Clin. ortop., Parma, 1952, 4: 483-486. 10 refs.

2790
Djabri, A. EFFET DE L'ACIDE l-ASCORBIQUE SUR L'OSTÉOGÉNÈSE ET LA MINÉRALISATION DES OS DU COBAYE NORMALE ET SCORBUTIQUE. Internat. Zschr. Vitaminforsch., Bern, 1940, 10: 210-223. 49 refs. Abstracted in: Biol. Abstr., Balt., 1941, 15: No. 17771; Chem. Abstr., 1941, 35: 5944^{1}. "The resorption of bone, which takes place in experimental scurvy, is inhibited by administering ascorbic acid. Within certain limits the osteogenesis is proportional to the intake of vitamin C. Either during their resorption or apposition, no chemical changes could be found in the composition of bones."

2791
Ferrario, C. V. LA AVITAMINOSIS C EXPERIMENTAL EN EL COBAYO Y LAS LESIONES DENTALES Y DEL PARADENCIO. Rev. odont., B. Air., 1941, 29: 115-142, 206-224. Abstracted in: Biol. Abstr., Balt., 1941, 15: No. 21935. In guinea pigs experimental studies were made of the effects of vitamin C deficiency on teeth and alveolar bone.

2792
Follis, R. H., Jr. HISTOCHEMICAL STUDIES ON CARTILAGE AND BONE. II. ASCORBIC ACID DEFICIENCY. Bull. Johns Hopkins Hosp., 1951, 89: 9-20. 36 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1951-52, 21: No. 3544. Findings suggest that the vitamin C is intimately related to the activity or formation of mucopolysaccharides and phosphatase in the "Gerüstmark". Its mode of action is unknown.

2793
Giangrasso, G. ACIDO ASCORBICO E TRAPIANTI OSSEI SPERIMENTALI. Boll. Soc. ital. biol. sper., 1940, 15: 987-988.

2794
Giangrasso, G. and Gangitano, L. VITAMINA C E TRAPIANTI OSSEI SPERIMENTALI. Ortop. taumat. app. motore, 1946, 14: 149-162. 59 refs.

2795
Ham, A. W. and Elliott, H. C. THE BONE AND CARTILAGE LESIONS OF PROTRACTED MODERATE SCURVY. Am. J. Path., 1938, 14: 323-336. 3 pl. 17 refs. Abstracted in: Biol. Abstr., Balt., 1938, 12: No. 7858.

2796
Hanke, H. EXPERIMENTELLE UNTERSUCHUNGEN ÜBER BEEINFLUSSUNG DER KNOCHENREGENERATION DURCH VITAMIN C. Deut. Zschr. Chir., 1935, 245: 530-545. 13 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1935-36, 5: No. 2669. "Administration of vitamin C to rabbits and guinea pigs after bone resection accelerated bone regeneration. Rabbits regenerated bone completely, though slowly on a vitamin C free diet and these animals showed vitamin C deposits in the liver. In guinea pigs developing scurvy on a scorbutic diet, bone regeneration was greatly retarded."- Nutrit. Abstr.

2797
Kapp, H. and Schetty, A. ÜBER DEN MINERALBESTAND VON BLUT UND KNOCHEN BEIM EXPERIMENTELLEN MEERSCHWEINSCHENSKORBUT. Biochem. Zschr., 1937, 290: 58-61. 24 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1937-38, 7: No. 366; Chem. Abstr., 1937, 31: 4373^{4}.

2798
Klein, L. NACHWEIS UND BEDEUTUNG DES VITAMIN C BEI KNOCHEN- UND MUSKELENTWICKLUNG. Anat. Anz., 1938, 87: 13-21. 16 refs. Abstracted in: Biol. Abstr., Balt., 1938, 12: No. 15988; Chem. Abstr., 1939, 33: 695^{1}.

2799
Kodicek, E. and Murray, P. D. F. INFLUENCE OF A PROLONGED PARTIAL DEFICIENCY OF VITAMIN C ON THE RECOVERY OF GUINEA PIGS FROM INJURY TO BONES AND MUSCLES. Nature, Lond., 1943, 151: 395-396. 7 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1943-44, 13: No. 1156. No reopening of healed fractures was observed in guinea pigs deprived of vitamin C or vitamin D.

2800
Levy, B. M. and Gorlin, R. J. THE TEMPOROMANDIBULAR JOINT IN VITAMIN C DEFICIENCY. J. Dent. Res., 1953, 32: 622-625. "The histologic changes in the mandibular condyle of animals maintained on vitamin C-deficient diets are described. They are consistent with those described for other bones of scorbutic animals.

2801
Lexer, E. W. DER EINFLUSS DES VITAMIN C AUF DIE REAKTIVE GEFÄSSFÜLLE BEI DER FRAKTURHEILUNG. Klin. Wschr., 1939, 18: 208-209. Abstracted in: Chem. Abstr., 1939, 33: 4643[7]. "There is a decreased hyperemia of the fracture in hypovitaminosis C and the periosteal vessels are extremely fragile." - Chem. Abstr.

2802
Maclean, D. L., Sheppard, M. and McHenry, E. W. TISSUE CHANGES IN ASCORBIC ACID DEFICIENT GUINEA-PIGS. Brit. J. Exp. Path., 1939, 20: 451-457. 4 pl. 13 refs. Abstracted in: Biol. Abstr., Balt., 1940, 14: No. 6682. In both bones and teeth "the vitamin deficiency causes a failure in those special cells which are concerned with the formation of calcific tissue. No evidence has been secured to support the jellation theory. Characteristic changes in other tissues have not been obtained. The inanition which is coincident with the development of ascorbic acid deficiency is not responsible for any of the observed histological changes."

2803
Mouriquand, G. and Dauvergne, M. OSTÉOPATHIES PAR CARENCE. ÉVOLUTION DES OSTÉOSES ET PÉRIOSTÉOSES PAR AVITAMINOSE C CHRONIQUE. Presse méd., 1938, 46: 1081-1082. 3 refs. Abstracted in: Chem. Abstr., 1939, 33: 4643[9].

2804
Mouriquand, G., Dauvergne, M. and Edel, V. SUR L'ACTION OSTÉOPHYTOGÈNE DU JUS DE CITRON EN TERRAIN CARENCÉ. (ANTIVITAMINES OU DIÉTOTOXIQUES?) Internat. Zschr. Vitaminforsch., Bern, 1949, 20: 386-392. 1 ref. Also in: Rev. rhumat., Par., 1949, 16: 67-68. "In experiments undertaken to illuminate the pathogenesis of osteoclast formation, small quantities of lemon juice in the diet were found necessary for their production, when there was inadequate intake of vitamin C."

2805
Murray, P. D. F. and Kodicek, E. BONES, MUSCLES AND VITAMIN C. I. THE EFFECT OF A PARTIAL DEFICIENCY OF VITAMIN C ON THE REPAIR OF BONE AND MUSCLE IN GUINEA-PIGS. J. Anat., Lond., 1949, 83: 158-174. pl. 26 refs. Abstracted in: Excerpta med., Sect. 1, 1950, 4: No. 902; Biol. Abstr., Balt., 1950, 24: No. 8958. "The healing of experimental fractures of the fibula in guinea-pigs was observed in partial vitamin C deficiency."

2806
Murray, P. D. F. and Kodicek, E. BONES, MUSCLES AND VITAMIN C. II. PARTIAL DEFICIENCIES OF VITAMIN C AND MID-DIAPHYSEAL THICKENINGS OF THE TIBIA AND FIBULA IN GUINEA-PIGS. J. Anat., Lond., 1949, 83: 205-223. pl. 35 refs. Abstracted in: Excerpta med., Sect. 1, 1950, 4: No. 903; Biol. Abstr., Balt., 1950, 24: No. 8958. The studies were made after fracture, or attempted fracture, of the fibula.

2807
Murray, P. D. F. and Kodicek, E. BONES, MUSCLES AND VITAMIN C. III. REPAIR OF THE EFFECTS OF TOTAL DEPRIVATION OF VITAMIN C AT THE PROXIMAL ENDS OF THE TIBIA AND FIBULA IN GUINEA-PIGS. J. Anat., Lond., 1949, 83: 285-295. pl. 5 refs. Abstracted in: Excerpta med., Sect. 5, 1950, 3: No. 3071; Biol. Abstr., Balt., 1950, 24: No. 8958.

2808
Murray, P. D. F. and Kodicek, E. SOME HISTOLOGICAL EFFECTS OF PARTIAL DEFICIENCY OF VITAMIN C ON HEALING PROCESSES: THE INFLUENCE OF BONE REPAIR. Proc. Nutrit. Soc., Cambr., 1946, 4: 200-203. 1 ref. An experiment investigating the statement that deprivation of vitamin C leads to reopening of healed fractures. Experimental diets were not given guinea pigs until callus formation was well advanced. In no case did the callus reopen.

2809
Perkins, H. R. and Zilva, S. S. THE INFLUENCE OF SCURVY AND FALL IN WEIGHT IN YOUNG GUINEA PIGS ON THE ALKALINE PHOSPHATASE CONTENT OF THE SERUM AND THE ZONES OF PROVISIONAL CALCIFICATION. Biochem. J., Lond., 1950, 47: 306-318. 16 refs. Abstracted in: Excerpta med., Sect. 2, 1951, 4: No. 4027; Biol. Abstr., Balt., 1951, 25: No. 16564.

2810
Prozorovskaia, L. L. SODERZHANIE MAGNIIA V ZUBAKH I KOSTIAKH MORSKIKH SVINOK PRI EKSPERIMENTAL'NOI TSYNGE I POSLE EE LECHENIIA. [CONTENT OF MAGNESIUM IN TEETH AND BONES IN GUINEA PIGS IN EXPERIMENTAL SCURVY AND FOLLOWING ITS THERAPY] Stomatologiia, Moskva, 1954, No. 1, 20-24. In guinea pigs experimental scurvy, produced by deficiency of vitamins C and P, was accompanied by a fall in bone and dental magnesium. Therapy with vitamins C and P cured the scurvy but the magnesium levels did not return to normal until after two months.

2811
Querido, A. and Gaillard, P. J. THE INFLUENCE OF VITAMIN C ON THE FORMATION OF COLLAGEN BY OSTEOGENETIC EXPLANTS IN TISSUE CULTURE. Acta brevia neerl., 1939, 9: 70-72. 2 refs.

2812
Roasenda, F. and Camurati, C. MODIFICAZIONI DELLA CARTILAGINE DI ACCRESCIMENTO DELLE OSSA LUNGHE NELLA CAVIA IN AVITAMINOSI C ACUTA SPERIMENTALE. Minerva ortop., Tor., 1952, 3: 165-166. Abstracted in: Excerpta med., Sect. 9, 1953, 7: No. 5772. "Vitamin C deficiency considerably reduces the activity of the epiphysial cartilage of the long bones, inhibiting their osteoblastic activity." - Excerpta med.

2813
Roasenda, F. and Camurati, C. MODIFICAZIONI DELLA CARTILAGINE DI INCROSTAZIONE DI CAVIA IN ACCRESCIMENTO NELLA CARENZA SPERIMENTALE ACUTA DI VITAMINA C. Minerva ortop., Tor., 1952, 3: 274-275.

2814
Robertson, W. van B. CONCENTRATION OF COLLAGEN IN GUINEA PIG TISSUES IN ACUTE AND PROLONGED SCURVY. J. Biol. Chem., 1950, 187: 673-677. 9 refs. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 16566.

2815
Robertson, W. van B. THE EFFECT OF ASCORBIC ACID DEFICIENCY ON THE COLLAGEN CONCENTRATION OF NEWLY INDUCED FIBROUS TISSUE. J. Biol. Chem., 1952, 196: 403-408. 12 refs.

2816
Robertson, W. van B. INFLUENCE OF ASCORBIC ACID ON N^{15} INCORPORATION INTO COLLAGEN IN VIVO. J. Biol. Chem., 1952, 197: 495-501. 17 refs. Abstracted in: Excerpta med., Sect. 2, 1953, 6: No. 2038; Biol. Abstr., Balt., 1953, 27: No. 513.

2817
Robertson, W. van B. and Schwartz, B. ASCORBIC ACID AND THE FORMATION OF COLLAGEN. J. Biol. Chem., 1953, 201: 689-696. 19 refs.

VITAMIN INFLUENCE - VITAMIN C (Continued)

2818
Roche, J. VITAMINE C ET SYSTÈME OSSEUX (OS ET DENTS). Exposés ann. biochim. méd., 1942, 3 sér., 18-29. 6 refs.

2819
Roche, J. and Martin-Poggi, R. RECHERCHES SUR L'OSSIFICATION. X. CARENCE EN ACIDE ASCORBIQUE ET RÉPARATION DES FRACTURES EXPÉRIMENTALES. Tr. Soc. chim. biol., 1941, 23: 1545-1555. 2 refs.

2820
Salter, W. T. and Aub, J. C. STUDIES OF CALCIUM AND PHOSPHORUS METABOLISM. IX. DEPOSITION OF CALCIUM IN BONE IN HEALING SCORBUTUS. Arch. Path., Chic., 1931, 11: 380-382. pl. 5 refs. Abstracted in: Biol. Abstr., Balt., 1932, 6: No. 9731; Chem. Abstr., 1931, 25: 4920.

2821
Scoz, G., Cattaneo, C. and Gabbrielli, M. C. IL CONSUMO DI OSSIGENO, I POTERI ENZIMATICI DEL FEGATO E I POTERI FOSFATASICI DEL SANGUE E DELL'OSSO NELLA AVITAMINOSI C SPERIMENTALE. Enzymologia, Haag, 1937, 3: 29-40. Approx. 34 refs. Abstracted in: Chem. Abstr., 1937, 31: 8631[6].

2822
Shaw, J. H., Phillips, P. H. and Elvehjem, C. A. ACUTE AND CHRONIC ASCORBIC ACID DEFICIENCIES IN THE RHESUS MONKEY. J. Nutrit., 1945, 29: 365-372. 21 refs. Abstracted in: Biol. Abstr., Balt., 1945, 19: No. 18719. The study includes a description of skeletal changes.

2823
Statsmann, L. ZUR CHEMISCHEN ZUSAMMENSETZUNG SKORBUTISCHER KNOCHEN. Biochem. Zschr., 1930, 217: 395-399. 7 refs. Abstracted in: Biol. Abstr., Balt., 1933, 7: No. 6052; Chem. Abstr., 1930, 24: 2167.

2824
*Terzi, M. IPO-VITAMINOSI C CRONICA E ALTERAZIONI OSTEO-ARTICOLARI. Clin. ortop., Parma, 1950, 2: 350-361. Abstracted in: Excerpta med., Sect. 9, 1951, 5: No. 5968.

2825
Tinacci, F. SUI RAPPORTI TRA ACIDO ASCORBICO E METABOLISMO DEI MUCOPOLISACCARIDI MESENCHIMALI. Arch. sc. biol., Bologna, 1952, 36: 127-134. 10 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1952, 22: No. 2143.

2826
Trizzino, E. and Grimaldi, G. SULL'AZIONE DELLA VITAMINA C NEI PROCESSI DI GUARIGIONE DELLE FRATTURE. Arch. ital. anat. pat., 1940, 12: 502-521. 95 refs.

2827
Wersch, H. J. van. SCURVY AS A SKELETAL DISEASE; A COMPARATIVE STUDY OF SCURVY AND RICKETS, CLINICALLY, HISTOLOGICALLY, HISTOCHEMICALLY, BIOCHEMICALLY AND ROENTGENOLOGICALLY. 365p. Utrecht, Dekker & Van de Vegt, 1954. Bibliography: p. 350-365.

2828
Wolbach, S. B. VITAMIN C AND THE FORMATION OF INTRACELLULAR MATERIAL. N. England J. M., 1936, 215: 1158-1159. An abstract. Abstracted in: Chem. Abstr., 1937, 31: 6295[7]. Cevitamic acid seems to be necessary for the formation of intracellular substances (white fibrous tissue, bone, cartilage and dentine) which have collagen as their bases.

See:

753	811	836	840	853
955	964	1157	1169	1206
1219	1441	1446	1510	1616
1979	2011	2142	2162	2253
2260	2606	2915		

VITAMIN INFLUENCE - VITAMIN D (including calcium-phosphorus imbalance studies)

2829
Alquier, J., Asselin, L., Kogane, M. and Silvestre de Sacy, G. VARIATIONS DE LA COMPOSITION MINÉRALE DU TISSUE OSSEUX CHEZ LE RAT NORMAL, RACHITIQUE, ET GUÉRI DU RACHITISME EXPÉRIMENTAL. C. rend. Acad. sc., 1930, 190: 334-336. Abstracted in: Chem. Abstr., 1930, 24: 2173.

2830
Aquila, N. RICERCHE SUL COMPORTAMENTO DEGLI ACIDI NUCLEICI CELLULARI NEL CALLO DI FRATTURA. Arch. sc. med., Tor., 1952, 94: 288-296. 22 refs. Abstracted in: Chem. Abstr., 1953, 47: 1810[f]. Experiments with rabbits indicated that changes in the cellular metabolism of the osseous callus are due to the presence of nucleic acids. After treatment with vitamin D greater quantities of the nucleic acids were found in the fibroplastic cells but they were not observed in the cartilage cells. It was concluded that vitamin D accelerates fracture healing either by its effect on the fixation of calcium salts or by increasing cellular metabolism, as indicated by the presence of abundant ribonucleic acid in the fibroblasts and interstitial tissue.

2831
Bailie, J. M. and Irving, J. T. CHANGES IN THE METAPHYSIS OF THE LONG BONES DURING THE DEVELOPMENT OF RICKETS. Brit. J. Exp. Path., 1948, 29: 539-546. 2 pl. 17 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1949-50, 19: No. 844.

2832
Bauer, W. and Marble, A. STUDIES ON THE MODE OF ACTION OF IRRADIATED ERGOSTEROL. III. THE EFFECT OF IRRADIATED ERGOSTEROL ADMINISTRATION ON THE FORMATION OF BONE TRABECULAE. J. Clin. Invest., 1932, 11: 37-45. 5 refs. Abstracted in: Chem. Abstr., 1932, 26: 1642; Nutrit. Abstr., Aberdeen, 1932-33, 2: No. 154. "The administration of a high calcium diet to cats with calcium phosphate deficiency of the bone results in an increase in the number of bone trabeculae. This increase in the number of bone trabeculae is greater when, in addition to a high calcium diet, irradiated ergosterol is given."

2833
Baumann, R. and Pommer, A. SPÄTRACHITIS BEIM HUND. Wien. tierärztl. Mschr., 1951, 38: 353-359. Abstracted in: Bull. Anal. CNRS, 1952, 13: pt. 2, No. 105444. X-ray and histological study of the modifications of bone structure in late rickets of the skeleton of a five month old dog.

2834
Becks, H., Collins, D. A. and Axelrod, H. E. THE EFFECTS OF A SINGLE MASSIVE DOSE OF VITAMIN D_2 (D-STOFF THERAPY) ON ORAL OR OTHER TISSUES OF YOUNG DOGS. Am. J. Orthodont., 1946, 32: 452-462. Abstracted in: Biol. Abstr., Balt., 1947, 21: No. 8377; Chem. Abstr., 1947, 41: 3842a.

2835
Bomskov, C. and Krüger, E. DER MAGNESIUM-GEHALT DES BLUTSERUMS BEI EXPERIMENTELLER RACHITIS UND D-HYPERVITAMINOSE. Zschr. Kinderh., 1931, 52: 47-53. 29 refs. Abstracted in: Chem. Abstr., 1932, 26: 3014.

2836
Boyle, P. E. and Wesson, L. G. INFLUENCE OF VITAMIN D ON THE STRUCTURE OF THE TEETH AND OF THE BONES OF RATS ON LOW CALCIUM DIETS. Arch. Path., Chic., 1943, 36: 243-252. 15 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1944-45, 14: No. 181.

2837
Bruce, H. M. and Parkes, A. S. RICKETS AND OSTEOPOROSIS IN XENOPUS LAEVIS. J. Endocr., Lond., 1950, 7: 64-81. pl. 33 refs. "The results... show that calcification in Xenopus is defective if vitamin D is deficient, even when there is an adequate supply of minerals in the diet. In this respect Xenopus resembles infants and puppies, but differs from smaller mammals such as rats, mice and hamsters, which, provided the calcium and phosphorus in the diet are well balance, apparently require extremely little, if any, vitamin D. The deformities of infantile rickets, 'knock nees, bow legs, enlargement of the epiphyses, malformations of the chest, contracted pelvis...' have their counterpart in corresponding skeletal deformities in Xenopus."

2838
Buckner, G. D., Insko, W. M., Jr., Henry, A. H. and Wachs, E. F. THE INFLUENCE OF VITAMIN D ON THE GROWTH AND OSSIFICATION OF THE STERNI, TIBIAE, FEMORA AND METATARSI OF NEW HAMPSHIRE COCKERELS. Poultry Sc., 1952, 31: 628-632. 1 ref. Vitamin D increased the weight, volume, length, and percentage of ash in the tibiae, femora, metatarsi, and sterni, influencing weight and volume more than length. It greatly influenced the rate of growth of bone in the keels but not the length of cartilage.

2839
Burmeister, W. ÜBER DEN CITRONENSÄURE-GEHALT IM KNOCHEN BEI RACHITISHEILUNG. (TIEREXPERIMENTELLE UNTERSUCHUNGEN.) Zschr. Kinderh., 1953, 73: 312-318. 10 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1954, 24: No. 351.

2840
Causeret, J. LA VITAMINE D, FACTEUR DE RÉGULATION DU POUVOIR PHYSIOLOGIQUE DE FIXATION DU CALCIUM. C. rend. Acad. sc., 1953, 237: 104-106. 5 refs. Abstracted in: Chem. Abstr., 1953, 47: 12542[f].

2841
Champeau, M. F. and Lecoq, R. TABLEAU HISTOLOGIQUE DES LÉSIONS OSSEUSES DU RACHITISME EXPÉRIMENTAL CHEZ LE RAT. C. rend. Soc. biol., 1947, 141: 993-994. Abstracted in: Nutrit. Abstr., Aberdeen, 1948-49, 18: No. 392.

2842
Cohn, W. E. and Greenberg, D. M. STUDIES IN MINERAL METABOLISM WITH THE AID OF ARTIFICIAL RADIOACTIVE ISOTOPES. III. THE INFLUENCE OF VITAMIN D ON THE PHOSPHORUS METABOLISM OF RACHITIC RATS. J. Biol. Chem., 1939, 130: 625-634. 20 refs. "...results brought out in this work indicate that a speeding up of the organic phosphorus metabolism through the agency of vitamin D may be an important factor in the mineralization of bone."

2843
Coleman, R. D., Becks, H., Van Nouhuys, K. F. and Copp, D. H. SKELETAL CHANGES IN SEVERE PHOSPHORUS DEFICIENCY OF THE RAT. I. TIBIA, METACARPAL BONE, COSTOCHONDRAL JUNCTION, CAUDAL VERTEBRA. Arch. Path., Chic., 1950, 50: 209-232. 18 refs. Abstracted in: Excerpta med., Sect. 5, 1951, 4: No. 1577.

2844
Collazo, J. A., Rubino, P. and Varela, B. DIE ROLLE DES VITAMINS D FÜR DIE REGENERATION DES KNOCHENGEWEBES UND DIE CALLUSBILDUNG BEI EXPERIMENTELLEN FRAKTUREN. Arch. klin. Chir., 1930, 158: 214-223. 15 refs. Abstracted in: J. Bone Surg., 1930, 12: 704; Biol. Abstr., Balt., 1931, 5: No. 10862.

2845
De Does, J. J., Gorter, E. and Seeder, W. A. EEN OBJECTIEVE METHODE OM IN VIVO HET KALKGEHALTE VAN HET BEENSTELSEL TE BEPALEN, IN HET BIJZONDER BIJ RACHITIS. Ned. tschr. geneesk., 1933, 77: 25-31. pl. French and English summaries. Abstracted in: Chem. Abstr., 1933, 27: 2466. "We found by this method that during the recovery from rickets, there is not only an increase of the calcium amount, but also a displacement of the calcium concentration at the epiphysical borderline."

2846
Dikshit, P. K. and Patwardhan, V. N. MODE OF ACTION OF VITAMIN D. ITS EFFECT ON THE CALCIFYING OF RACHITIC EPIPHYSES. Indian J. M. Sc., 1952, 6: 107-116. Abstracted in: Chem. Abstr., 1952, 46: 11369[b].

2847
Dikshit, P. K. and Patwardhan, V. N. STUDIES IN EXPERIMENTAL RICKETS. THE ALKALINE SERUM PHOSPHATASE IN RACHITIC ALBINO RATS. Indian J. M. Res., 1947, 35: 91-99. 20 refs. Abstracted in: Chem. Abstr., 1948, 42: 5109[c].

2848
Dikshit, P. K. and Patwardhan, V. N. STUDIES IN EXPERIMENTAL RICKETS. THE CHANGES IN THE IONIC PRODUCTS OF CALCIUM PHOSPHATES AND THE SERUM ALKALINE PHOSPHATASE WITH THE ONSET, PROGRESS AND HEALING OF RICKETS. Indian J. M. Res., 1946, 34: 263-272. 2 pl. 20 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1947-48, 17: No. 771.

2849
Dodds, G. S. and Cameron, H. C. THE SO-CALLED METAPLASIA OF THE CARTILAGE. REMNANTS IN THE RACHITIC METAPHYSIS. Anat. Rec., 1935, 61: Suppl., p. 14. An abstract.

2850
Dodds, G. S. and Cameron, H. C. STUDIES ON EXPERIMENTAL RICKETS IN RATS. I. STRUCTURAL MODIFICATIONS OF THE EPIPHYSEAL CARTILAGES IN THE TIBIA AND OTHER BONES. Am. J. Anat., 1934, 55: 135-160. 3 pl. 8 refs. A detailed histological description of changes found in the bones of rats on normal and rickets-producing diets.

2851
Dodds, G. S. and Cameron, H. C. STUDIES ON EXPERIMENTAL RICKETS IN RATS. II. THE HEALING PROCESS IN THE HEAD OF THE TIBIA AND OTHER BONES. Am. J. Path., 1938, 14: 273-296. 6 pl. 10 refs. Abstracted in: Biol. Abstr., Balt., 1938, 12: No. 7265. Detailed description of healing process studied by hematoxylin sections, silver preparations and frequent X-ray photographs.

2852
Dodds, G. S. and Cameron, H. C. STUDIES ON EXPERIMENTAL RICKETS IN RATS. III. THE BEHAVIOR AND FATE OF THE CARTILAGE REMNANTS IN THE RACHITIC METAPHYSIS. Am. J. Path., 1939, 15: 723-740. 2 pl. 10 refs. Abstracted in: Biol. Abstr., Balt., 1940, 14: No. 4794.

2853
Dodds, G. S. and Cameron, H. C. STUDIES ON EXPERIMENTAL RICKETS IN RATS. IV. THE RELATION OF RICKETS TO GROWTH, WITH SPECIAL REFERENCE TO THE BONES. Am. J. Path., 1943, 19: 169-185. 27 refs. Abstracted in: Biol. Abstr., Balt., 1943, 17: No. 13679. The progress of rickets and the growth of bones are traced by roentgenograms.

2854
Dolfini, G. and Robuschi, L. ULTERIORE CONTRIBUTO SULL'AZIONE DELL'ERGOSTERINA IRRADIATA NELL'OSTEOPATIA DA STRONZIO. Atti Ist. venet. sc., 1930-1931, 90: 1087-1106. 3 pl. 21 refs.

2855
*Edel, V. RACHITISME CHRONIQUE EXPERIMENTAL. C. rend. Soc. biol., 1939, 131: 275-277. Abstracted in: Nutrit. Abstr., Aberdeen, 1939-40, 9: No. 3290.

2856
Fernando, C. and Bruno, B. INFLUENZA DELLA LUCE SULL'AZIONE ANTIRACHITICA DEL FOSFORO. Boll. Soc. ital. biol. sper., 1938, 13: 164-166. Abstracted in: Nutrit. Abstr., Aberdeen, 1938-39, 8: No. 2167.

2857
Fischmann, C. F. TISSUE CULTURE EXPERIMENTS ON THE INFLUENCE OF VITAMIN D ON OSSIFICATION. Arch. exp. Zellforsch., 1937, 19: 211. Abstracted in: Chem. Abstr., 1937, 31: 8618[8].

2858
Follis, R. H., Jr. GLYCOGEN IN RACHITIC CARTILAGE AND ITS RELATION TO HEALING. Proc. Soc. Exp. Biol., N. Y., 1949, 71: 441-443. 13 refs. Abstracted in: Biol. Abstr., Balt., 1950, 24: No. 9505; Chem. Abstr., 1949, 43: 8038[a].

2859
Freeman, S. and McLean, F. C. EXPERIMENTAL RICKETS, BLOOD AND TISSUE CHANGES IN PUPPIES RECEIVING A DIET VERY LOW IN PHOSPHORUS, WITH AND WITHOUT VITAMIN D. Arch. Path., Chic., 1941, 32: 387-408. 21 refs.

2860
Freund, E. BEHAVIOR OF JOINT CARTILAGE IN LATE RICKETS. CONTRIBUTION TO THE QUESTION OF ATROPHY OF CARTILAGE. Arch. Surg., 1938, 37: 470-489. 7 refs.

2861
Garcia, I. VARIATIONS DU RAPPORT: PHOSPHORE/AZOTE (P/N) DE L'OS AU COURS DU RACHITISME EXPERIMENTAL CHEZ LE RAT. C. rend. Soc. biol., 1935, 119: 109-111. 1 ref. Abstracted in: Chem. Abstr., 1935, 29: 5156[9].

2362
García-Valdecasas, F., Kapff, J. and Salvá, J. A. EFECTOS DE LA ADMINISTRACIÓN PROLONGADA DE CALCIFEROL. Arch. Inst. farm. exp., Madr., 1951, 3: 82-87. 8 refs. Abstracted in: Chem. Abstr., 1952, 46: 3126[f].

2863
*Glanzmann, E., Meier, K. and Uehlinger, E. EXPERIMENTELLE UNTERSUCHUNGEN ÜBER CALCIUM SULFAT. RACHITIS BEI RATTEN UND IHRE BEEINFLUSSUNG DURCH DEN VITAMIN-D STOSS. Zschr. Vitaminforsch., Bern, 1946, 17: 131-142. Abstracted in: Chem. Abstr., 1947, 41: 5932[g].

2864
Glanzmann, E., Meier, K. and Walthard, B. EXPERIMENTELLE UND KLINISCHE UNTERSUCHUNGEN ÜBER VERHÜTUNG UND HEILUNG DER RACHITIS DURCH ZITRONENSÄURE. Zschr. Vitaminforsch., Bern, 1946, 17: 159-206. 21 refs.

2865
Gordonoff, T. and Minder, W. LE RACHITISME, LA VITAMINE D ET L'ACIDE CITRIQUE. J. physiol., Par., 1952, 44: 591-593. 8 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1953, 23: No. 1522.

2866
Gordonoff, T. and Minder, W. VERSUCHE MIT DEM CALZIUMISOTOP 45CA AN RACHITISCHEN UND MIT ZITRONENSÄURE GEHEILTEN RATTEN. Internat. Zschr. Vitaminforsch., Bern, 1951, 23: 16-21. 7 refs. Abstracted in: Excerpta med., Sect. 2, 1952, 5: No. 5819.

2867
Gordonoff, T. and Minder, W. VERSUCHE MIT DEM KALZIUMISOTOP ^{45}CA AN RACHITISCHEN UND MIT VITAMIN D GEHEILTEN RATTEN. 2. MITTEILUNG: Internat. Zschr. Vitaminforsch., Bern, 1952, 23: 504-507. 3 refs. Abstracted in: Chem. Abstr., 1952, 46: 9179[b].

2868
Grauer, R. C. THE EFFECT OF VIOSTEROL ON THE PERIOSTEUM IN EXPERIMENTAL FRACTURES. Arch. Surg., 1932, 25: 1035-1054. Abstracted in: Biol. Abstr., Balt., 1934, 8: No. 9599; Chem. Abstr., 1933, 27: 1946.

2869
Grauer, R. C. PRODUCTION OF OSTEITIS FIBROSA WITH OVERDOSES OF VITAMIN D. Proc. Soc. Exp. Biol., N. Y., 1932, 29: 466-467.

2870
Gubner, R. THE METABOLIC BACKGROUND OF RICKETS; AN INTERPRETIVE REVIEW. N. England J. M., 1937, 216: 879-887. 93 refs.

2871
Ham, A. W. and Lewis, M. D. HYPERVITAMINOSIS D RICKETS; THE ACTION OF VITAMIN D. Brit. J. Exp. Path., 1934, 15: 228-234. 16 refs.

2872
Hamilton, B. and Highman, W. J., Jr. THE CHANGES IN TOTAL CALCIUM CONTENT OF THE BONES DURING THE DEVELOPMENT OF RICKETS. J. Nutrit., 1938, 15: 177-186. 14 refs. Abstracted in: Biol. Abstr., Balt., 1938, 12: No. 3165; Chem. Abstr., 1938, 32: 5450[4].

2873
Hamperl, H. DIE ANATOMISCHEN GRUNDLAGEN UND DIE ENTSTEHUNG DER SOG. QUERSCHATTEN IN DEN METAPHYSEN WACHSENDER KNOCHEN. Zschr. Kinderh., 1934, 56: 324-337. 47 refs. From radiological and histological studies of the growing bones of 3 human subjects it was concluded that the observed metaphyseal striations were due to faulty ossification. This was believed to result from overdosage of phosphorus, arsenic, lead, vitamin D or from congenital

2874
Harrison, H. E. and Harrison, H. C. THE UPTAKE OF RADIOCALCIUM BY THE SKELETON: THE EFFECT OF VITAMIN D AND CALCIUM INTAKE. J. Biol. Chem., 1950, 185: 857-867. 8 refs. Abstracted in: Biol. Abstr., Balt., 1951, 25: No. 7493; Chem. Abstr., 1950, 44: 10868h. Findings indicate that bone calcium is rapidly exchanged with body fluid calcium, that the rate of turnover of skeletal calcium is increased by administration of vitamin D, and that the exchange of calcium between skeleton and body fluids is slower in older rats. Because of the rapid exchange of calcium, the uptake of Ca^{45} by the bones cannot be taken as a measure of new bone formation.

2875
Henry, K. M. and Kon, S. K. THE RELATIONSHIP BETWEEN CALCIUM RETENTION AND BODY STORES OF CALCIUM IN THE RAT: EFFECT OF AGE AND OF VITAMIN D. Brit. J. Nutrit., 1953, 7: 147-159. 36 refs. Abstracted in: Chem. Abstr., 1953, 47: 7050h. A description, with detailed tables, of experiments with 3 groups of litter-mate male rats fed diets containing different levels of Ca and P and regular amounts of cod liver oil. Results showed that Ca retention decreased in all groups as the animals aged. Bone analyses indicated that the calcification rate initially depends on the calcium content of the diet but that calcification in year old rats is similar in all groups. It is suggested that before calcification is complete, Ca retention from a low Ca diet is influenced by the animals' body store. A second experiment, in which the various Ca and P level diets were supplemented, or not supplemented, by vitamin D is considered proof that vitamin D had no effect on Ca metabolism in rats.

2876
Hurni, H. VERGLEICHENDE UNTERSUCHUNGEN ÜBER DIE ANTIRACHITISCHE WIRKSAMKEIT VON VITAMIN D UND ZITRONENSÄURE AUF DIE EXPERIMENTELLE RATTENRACHITIS. Internat. Zschr. Vitaminforsch., Bern, 1948, 20: 216-228. pl. 6 refs.

2877
Itoh, M. ÜBER DIE VERÄNDERUNGEN DER HARTGEWEBE UND INNERSEKRETORISCHEN DRÜSEN DURCH WIEDERHOLTE ÜBERDOSIERUNG VON VITAMIN-D. Tr. Soc. path. jap., 1938, 28: 493-499. Abstracted in: Chem. Abstr., 1939, 33: 2191[3].

2878
Jansen, B. C. P. THE NECESSITY OF VITAMIN D IN OLD AGE. Rev. méd. Liège, 1950, 5: 667-669. 1 ref. Abstracted in: Excerpta med., Sect. 2, 1951, 4: No. 3328.

2879
Jones, J. H. THE PRODUCTION OF HYPERCALCEMIA WITH SMALL AMOUNTS OF VITAMIN D. J. Nutrit., 1944, 28: 7-16. 15 refs. Study was with rats on various experimental diets. Calcium of sera was analyzed, the wrist bone examined for development of rickets, and percentage ash of the lipoid free bone of the femur determined. Data obtained support the view that vitamin D increases absorption of calcium from the intestines, and, serve to emphasize the importance of the calcium-phosphorus product of the serum in calcification.

2880
Jones, J. H. and Robson, G. M. THE EFFECT OF LARGE DOSES OF IRRADIATED ERGOSTEROL UPON THE ASH CONTENT OF THE FEMORA OF YOUNG AND ADULT RATS. J. Biol. Chem., 1931, 91: 43-56. 10 refs. Abstracted in: Biol. Abstr., Balt., 1933, 7: No. 10548; Chem. Abstr., 1931, 25: 3697. "Irradiated ergosterol in extremely toxic doses has no specific action which results in actually withdrawing calcium salts from bone comparable to its ossifying action when given in therapeutic doses."

2881
Jones, J. H. and Robson, G. M. THE EFFECT OF OVERDOSES OF IRRADIATED ERGOSTEROL, ADMINISTERED FOR APPROXIMATELY TWO MONTHS, ON THE COMPOSITION AND STRUCTURE OF THE BONES OF RATS. Am. J. Physiol., 1933, 103: 338-350. pl. 9 refs. Abstracted in: Biol. Abstr., Balt., 1934, 8: No. 5625; Chem. Abstr., 1933, 27: 2715.

2882
*Kanazawa, K. [FAT AT THE ENDOCHONDRAL SITE OF OSSIFICATION IN RICKETS AND OSTEOMALACIA] Mitt. path. Inst. Niigata Med. Fakultät, 1932, 25: 1-9. In German. Abstracted in: Chem. Abstr., 1939, 33: 5459[6]. "In clinical cases and in experimental rickets in rabbits, the fat in the hydrophilic zone of ossification increased as the disease became worse and diminished as the disease improved." - Chem. Abstr.

2883
Karshan, M. and Rosebury, T. CORRELATION OF CHEMICAL AND PATHOLOGICAL CHANGES IN TEETH AND BONES ON RACHITIC AND NON-RACHITIC DIETS. J. Dent. Res., 1933, 13: 305-310. 5 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1933-34, 3: No. 3486; Chem. Abstr., 1933, 27: 5379.

2884
Kollath, W. DAS WACHSTUMSPROBLEM UND DIE FRAGE DES ZELLERSATZES IN DER VITAMINFORSCHUNG. VIII. MITTEILUNG: ÜBER DIE UNSPEZIFISCHEN GRUNDLAGEN DER RACHITIS UND DER RACHITISÄHNLICHEN KRANKHEITEN: KNOCHEN. (VERSUCH 25-42). Arch. exp. Path., Lpz., 1933, 170: 635-665. 1 ref.

2885
Kollath, W. DAS WACHSTUMSPROBLEM UND DIE FRAGE DES ZELLERSATZES IN DER VITAMINFORSCHUNG. IX. MITTEILUNG: ÜBER DIE UNSPEZIFISCHEN GRUNDLAGEN DER RACHITIS UND RACHITISÄHNLICHEN KRANKHEITEN: KNORPEL. (VERSUCH 43-46). Arch. exp. Path., Lpz., 1933, 170: 666-682. 64 refs.

2886
Kotrnetz, H. and Weiss, O BEEINFLUSSUNG DER CALLUSBILDUNG DURCH A.T.10. Klin. Wschr., 1937, 16: 1469-1471. 11 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1937-38, 7: No. 4683. Roentgenological observations.

2887
Kraemer, V. von, Landtman, B. and Simola, P. E. IN VITRO STUDIES ON ROLE OF VITAMIN D IN METABOLISM OF CALCIUM AND PHOSPHORUS IN RAT BONES. Acta physiol. scand., 1940, 1: 285-298. 8 refs.

2888
Kramer, B., Shear, M. J. and Siegel, J. COMPOSITION OF BONE. X. MECHANISM OF HEALING IN EXPERIMENTAL RICKETS. Acta paediat., Upps., 1930, 11: 350-352. 2 refs.

2889
Latta, J. S. and Tristan, T. A. ALTERATIONS IN LONG BONES OF YOUNG ALBINO RATS INDUCED BY DIHYDROTACHYSTEROL (HYTAKEROL). Proc. Soc. Exp. Biol., N. Y., 1950, 75: 403-408. 13 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1950-51, 20: No. 4927. The histological alterations described in this report are considered the result of direct action of dihydrotachysterol causing a removal of calcium from bone.

2890
Lindquist, B. EFFECT OF VITAMIN D ON THE METABOLISM OF RADIOCALCIUM IN RACHITIC RATS. Acta paediat., Upps., 1952, 41: Suppl. 86. 82p. pl. Approx. 85 refs.

2891
Lund, A. P. and Armstrong, W. D. THE EFFECT OF A LOW CALCIUM AND VITAMIN D FREE DIET ON THE SKELETON AND TEETH OF ADULT RATS. J. Dent. Res., 1942, 21: 513-518. 14 refs. Abstracted in: Biol. Abstr., Balt., 1943, 17: No. 23949. Studies of the effect of the diet on the calcium-phosphorus balance and on the composition of bones and teeth indicated that bone substance was lost from the interior of the bone without loss from the surface and that the mineral and organic phases were proportionately decreased in the osteoporetic bone.

2892
Lund, A. P. and Armstrong, W. D. EFFECT OF LOW-CALCIUM AND VITAMIN D-DEFICIENT DIET ON BONES AND TEETH OF MATURE RATS. Proc. Soc. Exp. Biol., N. Y., 1942, 50: 363-365. 3 refs. "The average volume of the humeri of the experimental animals did not differ from that of the controls but the average density of the bones of the former animals was 10.8% less than that of the controls.

2893
McGowan, J. P. SOME OBSERVATIONS ON RICKETS, WITH SPECIAL REFERENCE TO ITS OCCURRENCE IN PIGS. Brit. M. J., 1933, II: 599-602. 25 refs. Abstracted in: Biol. Abstr., Balt., 1935, 9: No. 6970.

2894
McLean, F. C. THE PATHOGENESIS OF RICKETS. Tr. Ass. Am. Physicians, 1936, 51: 144-147. 6 refs. Observations "have led us to the working hypothesis that calcification occurs in two steps, first, formation of a colloidal complex of calcium and phosphate in the fluids of the body; and second, deposition of this substance, aided by some specific process analogous to adsorption. In typical rickets only the first of these two steps is at fault..."

2895
Malmberg, N. OCCURENCE AND SIGNIFICANCE OF EARLY PERIOSTEAL PROLIFERATION IN THE DIAPHYSES OF PREMATURE INFANTS. Acta paediat., Upps., 1945, 32: 626-633. pl. 5 refs. The periosteal proliferation at the diaphysis of the long bones of the majority of prematurely born infants, which may be seen by roentgen examination at 4-6 weeks of age, are thought to be due to vitamin D deficiency and to be early evidence of rickets. Data are presented to support this view.

2896
Marek, J., Wellmann, O. and Urbányi, L. CHEMISCHER AUFBAU DER KNOCHENSALZE BEI GESUNDEN UND BEI RACHITISCHEN TIEREN. Hoppe Seyler Zschr., 1934, 226: 3-17. 17 refs. Abstracted in: Biol. Abstr., Balt., 1936, 10: No. 18325; Chem. Abstr., 1934, 28: 6177^{9}.

2897
*Marek, J., Wellmann, O. and Urbányi, L. [SUMMARY OF THE NATURE OF RHACHITIS AND SIMILAR BONE DISEASES, WITH RESPECT TO RECENT INVESTIGATIONS] Acta vet. hung., 1949, 1: 47-61. 49 refs. Abstracted in: Chem. Abstr., 1951, 45: 1212^{b}.

2898
Marek, J., Wellmann, O. and Urbányi, L. TOVÁBBI VIZSGALATOK AZ ANGOLKÓRRÓL ÉS A CSONTLÁGYNLÁSRÓL. Allatorv. lap., 1938, 61: 75-79. Abstracted in: Chem. Abstr., 1938, 32: 4197^{1}.

2899
Marek, J., Wellmann, O. and Urbányi, L. UNTERSUCHUNGEN ÜBER RACHITIS UND VERWANDTE. KNOCHENERKRANKUNGEN. III. MITTEILUNG. VERSUCHE AN HUNDEN. Arch. wiss. prakt. Tierh., 1939, 74: 421-432. Abstracted in: Nutrit. Abstr., Aberdeen, 1939-40, 9: No. 2856.

2900
Mascherpa, P. and Lusignani, G. AZIONE ASSOCIATA DEL FLUORURO DI SODIO E DELLA VITAMINA D SU ALCUNI COMPONENTI CHIMICI DELLE OSSA. Boll. Soc. ital. biol. sper., 1936, 11: 720-723. 10 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1937-38, 7: No. 250.

2901
Mellanby, E. A STORY OF NUTRITIONAL RESEARCH. THE EFFECT OF SOME DIETARY FACTORS ON BONES AND THE NERVOUS SYSTEM. 454p. Baltimore, Williams & Wilkins, 1950. Refs.: p. 200-203, 437-440. Abstracted in: Nutrit. Abstr., Aberdeen, 1950-51, 20: No. 3018. The author interprets the functions of "these two inseparables, vitamins A and D... First vitamin A controls, or at least influences, the activity of the osteoblasts which lay down the soft bone matrix. Vitamin D then attends to the calcification of this osteoid tissue, and finally vitamin A again steps in and sees that any superfluous calcified bone is removed by osteoclastic action and that the bone shape is correct."

2902
Meyer zu Hörste, G. DIE VERKALKUNG RACHITISCHEN RATTENKNORPELS IN VITRO UNTER VERSCHIEDENEN BEDINGUNGEN. Mschr. Kinderh., 1930, 48: 6-8. Abstracted in: Chem. Abstr., 1932, 26: 3011.

2903
Meyer zu Hörste, G. VERKALKUNGS VERSUCHE IN VITRO. ERSTE MITTEILUNG: DIE VERKALKUNG RACHITISCHEN RATTENKNORPELS IN EINER ANORGANISCHEN SALZLÖSUNG. Jahrb. Kinderh., 1931, 131: 203-215. 38 refs. Abstracted in: Biol. Abstr., Balt., 1932, 6: No. 22275; Nutrit. Abstr., Aberdeen, 1931-32, 1: No. 697.

2904
Migicovsky, B. B. and Emslie, A. R. G. DEPOSITION OF RADIOACTIVE CALCIUM IN RACHITIC AND NON-RACHITIC CHICK TIBIA FROM ORAL AND INTRAMUSCULAR DOSES OF CA^{45}. Arch. Biochem., N. Y., 1950, 28: 324-328. 5 refs. Abstracted in: Chem. Abstr., 1951, 45: 5780^{i}. "Experiments on the deposition of calcium in rachitic and nonrachitic chick tibia from oral and intramuscular doses indicate that vitamin D does not exert a direct effect on the mineralization of bones of chicks."

2905
Migicovsky, B. B. and Emslie, A. R. G. INTERACTION OF CALCIUM, PHOSPHORUS, AND VITAMIN D. I. INFLUENCE OF DIETARY CALCIUM AND PHOSPHORUS ON BODY WEIGHT AND BONE ASH OF CHICKS. Arch. Biochem., N. Y., 1947, 13: 175-183. 9 refs. Abstracted in: Chem. Abstr., 1947, 41: 6313^{a}; Nutrit. Abstr., Aberdeen, 1947-48, 17: No. 3160.

2906
Migicovsky, B. B. and Emslie, A. R. G. INTERACTION OF CALCIUM, PHOSPHORUS AND VITAMIN D. II. THE RACHITOGENIC INDEX. Arch. Biochem., N. Y., 1947, 13: 185-189. 5 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1947-48, 17: No. 3160.

2907
Migicovsky, B. B. and Emslie, A. R. G. INTERACTION OF CALCIUM, PHOSPHORUS AND VITAMIN D. III. STUDY OF MODE OF ACTION OF VITAMIN D USING CA^{45}. Arch. Biochem., N. Y., 1949, 20: 325-330. 5 refs. Abstracted in: Biol. Abstr., Balt., 1949, 23: No. 18151; Nuclear Sc. Abstr., 1949, 2: No. 1461. Results lead the authors to conclude that the effect of vitamin D on the mineralization of bone is indirect in that it prevents the solution of bone.

2908
Migicovsky, B. B. and Nielson, A. M. CALCIUM ABSORPTION AND VITAMIN D IN THE CHICK. Arch. Biochem., N. Y., 1951, 34: 105-111. 9 refs. Abstracted in: Biol. Abstr., Balt., 1952, 26: No. 8296; Chem. Abstr., 1952, 46: 11366d.

2909
Morgan, A. F. RELATION OF DIET TO HEALTH. J. Am. Dent. Ass., 1935, 22: 1465-1477. 28 refs. Abstracted in: Biol. Abstr., Balt., 1937, 11: No. 631.

2910
Morgan, A. F., Axelrod, H. E. and Groody, M. THE EFFECT OF A SINGLE MASSIVE DOSE OF VITAMIN D_2 ON YOUNG DOGS. Am. J. Physiol., 1947, 149: 333-339. 17 refs. Abstracted in: Chem. Abstr., 1947, 41: 5190g. Remote rather than immediate effects of single massive doses of vitamin D_2 were studied in this experiment. Malocclusion, pitting, irregular placing and poor development of the teeth were seen in all the dogs. Extensive calcification was found in lungs; moderate calcification in hearts and kidneys of all animals.

2911
Morgan, A. F., Shimotori, N. and Hendricks, J. B. PROGRESS OF HYPERVITAMINOSES D_2 AND D_3 AND RECOVERY IN RATS, AS AFFECTED BY DIETARY CALCIUM AND PHOSPHORUS AND VITAMIN A. J. Biol. Chem., 1940, 134: 761-779. 19 refs.

2912
Morelle, J. INFLUENCE DE LA VITAMINE D SUR LA CONSOLIDATION DES FRACTURES EXPÉRIMENTALES. Rev. belge sc. méd., 1933, 5: 481-530. 4 pl. 183 refs. Abstracted in: Biol. Abstr., Balt., 1935, 9: No. 2786.

2913
Morelle, J. MUTATIONS CALCIQUES DANS LA GUÉRISON DU RACHITISME EXPÉRIMENTAL. Rev. belge sc. méd., 1931, 3: 874-882. 3 pl. 9 refs. Abstracted in: Biol. Abstr., Balt., 1933, 7: No. 5997.

2914
Morgareidge, K. and Manly, M. L. SIMULTANEOUS APPEARANCE OF A POSITIVE LINE TEST AND RADIOACTIVE PHOSPHATE DEPOSITION IN THE RACHITIC RAT METAPHYSIS. J. Nutrit., 1939, 18: 411-421. pl. 16 refs. Abstracted in: Biol. Abstr., Balt., 1940, 14: No. 496; Chem. Abstr., 1940, 34: 4769. "The data show that vitamin D has no influence on the entrance of phosphorus into the diaphyseal portion of the tibia. In the metaphysis, however, the healing produced by the vitamin... occurs concomitantly with a significant increase in the content of radioactive phosphorus."

2915
Mouriquand, G. and Edel, V. TROUBLES DE LA CALCIFICATION COMPARÉS DANS LE RACHITISME ET DANS LE SCORBUT. (DONNÉES RADIOLOGIQUES). Internat. Zschr. Vitaminforsch., Bern, 1949, 20: 392-399. Also in: Rev. rhumat., Par., 1949, 16: 65-67. Abstracted in: Excerpta med., Sect. 9, 1951, 5: No. 3226; Chem. Abstr., 1949, 43: 6295b.

2916
Muracciole, J. C. ACCIÓN DE LA VITAMINA D_2 SOBRE LA CALCIFICACIÓN DEL DIENTE DE RATA. Rev. odont., B. Air., 1953, 41: 60-62. 3 refs. White rats were injected with high doses of vitamin D_2 for the purpose of studying the action of this vitamin on dental structures. Results showed a highly calcified dentine easily discernable on the growing incisors and a fine line of dentine on the molars more highly calcified near the pulp sockets. These findings were interpreted as indicating that the deposit of calcium salts in the dental structure is favored by high doses of vitamin D_2.

2917
Murao, S. EXPERIMENTAL STUDIES ON THE PRODUCTION OF RICKETS. OCCURRENCE OF RICKETS WITH GALLOSTEROL AS THE VITAMIN A SOURCE AND WITH NORMAL PHOSPHORUS AND CALCIUM CONTENTS OF THE SALT MIXTURE. J. Biochem., Tokyo, 1936, 23: 71-90. pl. 15 refs. Abstracted in: Chem. Abstr., 1936, 30: 30347.

2918
Nakajima, T., Sugita, T. and Watanabe, T. [ON THE INFLUENCE OF THE FEED UPON BONES. III. INFLUENCE OF COD-LIVER OIL ON THE COMPOSITION AND STRUCTURE OF THE BONES] Jap. J. Vet. Sc., 1951, 13: 183-190. pl. 14 refs. English summary.

2919
Nicolaysen, R. A NOTE ON THE CALCIUM AND PHOSPHORUS REQUIREMENTS OF RACHITIC RATS. Biochem. J., Lond., 1937, 31: 105-106. 4 refs.

2920
Nicolaysen, R. STUDIES UPON THE MODE OF ACTION OF VITAMIN D. I. INVESTIGATIONS UPON THE PHOSPHORUS COMPOUNDS IN MUSCLES, LIVER AND KIDNEYS AS INFLUENCED BY DIFFERENT LEVELS OF VITAMIN D AND PHOSPHORUS IN THE DIET. Biochem. J., Lond., 1936, 30: 1329-1337. 15 refs. Abstracted in: Chem. Abstr., 1936, 30: 83199. A study on rachitic rats.

2921
Nicolaysen, R. VITAMIN D AND THE BONE FORMATION. Acta paediat., Upps., 1939, 24: 368-372. Abstracted in: Chem. Abstr., 1939, 33: 58922. "Vitamin D influences the deposition of Ca and P in the bones by regulation of the absorption of these elements from the intestine only. No direct action on the chemical composition has been observed."

2922
Nicolaysen, R. and Jansen, J. VITAMIN D AND BONE FORMATION IN RATS. Acta paediat., Upps., 1939, 23: 405-433. Abstracted in: Nutrit. Abstr., Aberdeen, 1939-40, 9: No. 2854. "... the degree of calcification of the bones as indicated by chemical analysis appeared to depend solely on the amounts of Ca and P absorbed and not on the presence or absence of vitamin D. Histological examination of the bones, however, seemed to indicate that vitamin D influenced to some extent the architecture of the bones." - Nutrit. Abstr.

2923
*Nordfeldt, S. STUDIES WITH RADIOACTIVE PHOSPHORUS ON THE INFLUENCE OF VITAMIN D ON PHOSPHORUS METABOLISM IN YOUNG PIGS. Kgl. Lantbrukshögsk. Ann., 1949, 16: 114-126. Abstracted in: Nutrit. Abstr., Aberdeen, 1949-50, 19: No. 3326. "It was shown that most of the P^{32} appeared in the bones and muscles; when vitamin D also was given, less P^{32} reached the muscles and liver and more reached the skeleton, while the content of P^{32} in the kidney, blood, faeces and urine was unaffected. Under the influence of vitamin D the femur bone was more compact." - Nutrit. Abstr.

2924
O'Brien, B. and Morgareidge, K. RADIOGRAPHIC DEMONSTRATION OF PROTECTION BY VITAMIN D AGAINST METAPHYSEAL DECALCIFICATION IN ADULT RATS ON HIGH CALCIUM-LOW PHOSPHORUS DIET. J. Nutrit., 1938, 16: 91-102. 5 refs. Abstracted in: Biol. Abstr., 1938, 12: No. 12973; Chem. Abstr., 1938, 32: 79689. Adult rats fed a rachitogenic diet for one year showed marked skeletal decalcification upon radiological and bone ash analyses. Vitamin D administered during the last 18 weeks of the experiment improved, but did not completely correct this condition.

2925
Ortolani, M. RACHITISMO SPERIMENTALE; INDAGINI ISTOLOGICHE E RADIOGRAFICHE. Arch. Ist. biochim. ital., 1931, 3: 435-478. 50 refs. Abstracted in: Biol. Abstr., Balt., 1933, 7: No. 21229. Rachitic diets provoked bone lesions in white rats that were histologically very similar to those commonly observed in human rickets.

2926
Ott, G. L. and Coombes, A. I. RICKETS IN SILVER FOX PUPS. Vet. Med., Chic., 1941, 36: 202-205. "The experimental production of rickets in silver fox pups is described, along with... the chemical analyses of the blood for serum calcium and inorganic phosphorus content, and the total ash content of the bones."

2927
Palmer, N. amd Mottram, J. C. THE INFLUENCE OF PHYTIN AND OF FATS ON THE PRODUCTION OF RICKETS BY A CEREAL DIET. Biochem. J., Lond., 1939, 33: 512-515. "The rachitogenic action of cereals does not reside in the phytin which they contain, for the reason that the addition of phytin instead of increasing this action reduces the rickets. The addition of a vegetable oil free from vitamin D does not prevent the occurrence of rickets resulting from a cereal diet..."

2928
Park, E. A. OBSERVATIONS ON THE PATHOLOGY OF RICKETS WITH PARTICULAR REFERENCE TO THE CHANGES AT THE CARTILAGE-SHAFT JUNCTIONS OF THE GROWING BONES. Harvey Lect., Balt., 1939, ser. 34, 157-213. 34 refs. Also in: Bull. N. York Acad M., 1939, 15: 495-543. Changes were studied in sections of bones of rats at various stages of rickets and of infants and children coming to autopsy.

2929
Patwardhan, V. N. and Sukhtankar, D. R. THE MODE OF ACTION OF VITAMIN D. Current Sc., Bangalore, 1943, 12: 79. 5 refs. Abstracted in: Chem. Abstr., 1943, 37: 5762[3]. "Studies on experimental rickets (in puppies) and clinical rickets show that the calcification at the epiphyses and the soly. products of $CaHPO_4$ are correlated. The critical values for the negative logs of the ionic products of $[Ca^{++}] \times [HPO_4^{--}]$ and $[Ca^{++}]^3 \times [PO_4^{---}]^2$ are 5.7 and 23.0 respectively. The corresponding values for rachitic children and vitamin D-deficient animals lie below the critical values." - Chem. Abstr.

2930
Pierce, J. A. THE REACTION OF THE EPIPHYSEAL CARTILAGE IN NORMAL AND RACHITIC RATS. J. Biol. Chem., 1938, 124: 115-124. 12 refs. Abstracted in: Chem. Abstr., 1938, 32: 6312[9]. "No detectable difference was observed... and no evidence... found to support the theory of local acidosis as a cause of rickets or local alkalosis as an explanation for the normal localization of calcification."

2931
Policard, A., Pehu, M. and Boucomont, J. RECHERCHES HISTOPATHOLOGIQUES SUR LE RACHITISME DANS LA PREMIÈRE ENFANCE. I. LE TISSU CHONDROÏDE. Bull. histol. appl., Lyon, 1932, 9: 73-99. 8 refs. Abstracted in: Biol. Abstr., Balt., 1934, 8: No. 3587. "Descriptions of and physical and microchemical tests on cartilage show that in rickets the cells do not degenerate but increase into the zone of ossification; cartilage patterns are irregular; the matrix lacks minerals and becomes hydrated and physically more like white connective tissue." - Biol. Abstr.

2932
Policard, A., Pehu, M. and Boucomont, J. RECHERCHES HISTOPATHOLOGIQUES SUR LE RACHITISME DANS LA PREMIÈRE ENFANCE. II. LE TISSU OSTÉOÏDE. Bull. histol. appl., Lyon, 1932, 9: 226-246. 8 refs. Abstracted in: Biol. Abstr., Balt., 1934, 8: No. 18044. Description with histological and radiological studies of the osteoid tissue of the bones in rickets in early childhood.

2933
Ramalingaswami, V., Srīramachari, S., Dikshit P. K., Tulpule, P. G. and Patwardhan, V. N. MODE OF ACTION OF VITAMIN D. HISTOCHEMICAL STUDY OF RACHITIC EPIPHYSEAL CARTILAGE DURING HEALING IN ALBINO RAT. Ind. J. M. Sc., 1954, 8: 509-516. 28 refs.

2934
Roche, A. and Garcia, I. RECHERCHES SUR L'OSSIFICATION. II. DYSTROPHIES OSSEUSES CHEZ LE RAT EN CROISSANCE. Bull. Soc. chim. biol., Par., 1936, 18: 1027-1040. pl. 9 refs. Abstracted in: Biol. Abstr., Balt., 1937, 11: No. 18518; Chem. Abstr., 1936, 30: 7648[5].

2935
Rogoziński, F. O KRZYWICY DOŚWIADCZALNEJ. III. WPŁYW CHLORKU AMONOWEGO NA WYMIANE MINERALNA SZCZURA KRZYWICZEGO. SUR LE RACHITISME EXPÉRIMENTAL. III. L'INFLUENCE DU CHLORURE D'AMMONIUM SUR LE MÉTABOLISME MINÉRAL DU RAT RACHITIQUE. Bull. internat. Acad. polon. sc., Ser. B. Sc. natur. (II), 1931, 555-565. pl. 5 refs. Abstracted in: Biol. Abstr., Balt., 1934, 8: No. 8560. In experiments on white rats rendered rachitic by Steenbock and Black's diet, it was found that addition of ammonium chloride to the diet had no beneficial effect on mineral metabolism, nor on the ash content of the femurs. These findings were established by radiographic examination, mineral balance studies and chemical analysis.

2936
Rominger, E. PHYSIOLOGIE UND PATHOLOGIE DES D-VITAMINS. Erg. Vitam. Hormonforsch., 1939, 2: 104-159. Approx. 300 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1939-40, 9: No. 244.

2937
Rosenheim, A. H. VARIABILITY IN THE ACTIVITY OF THE CALCIFYING MECHANISM IN THE BONES OF RACHITIC RATS. Biochem. J., Lond., 1934, 28: 708-711. pl. 3 refs. "The calcifying power of the cartilage in the bones of rachitic rats varies with the rate of growth of the animals over a 3 to 4 week period on a rachitogenic diet and decreases as the period on the diet is increased."

2938
Russell, W. C., Taylor, M. W. and Duncan, M. T. BONE DEVELOPMENT IN NORMAL AND RACHITIC RATS. J. Nutrit., 1939, 18: 27-33. 4 refs. Abstracted in: Biol. Abstr., Balt., 1939, 13: No. 16543; Chem. Abstr., 1939, 33: 8708[4].

2939
Schneider, H. and Steenbock, H. A LOW PHOSPHORUS DIET AND THE RESPONSE OF RATS TO VITAMIN D2. J. Biol. Chem., 1939, 128: 159-171. 27 refs. Calcium and phosphorus balances and tissue [illegible] brain) analyses by directing pho growing bone at sues in rats on

2940

Shohl, A. T. PHYSIOLOGY AND PATHOLOGY OF VITAMIN D. J. Am. M. Ass., 1938, 111: 614-619. 56 refs. Abstracted in: Chem. Abstr., 1938, 32: 8491[8]. A review of the literature on vitamin D and rickets.

2941

Shohl, A. T. and Wolbach, S. B. RICKETS IN RATS. XV. THE EFFECT OF LOW CALCIUM-HIGH PHOSPHORUS DIETS AT VARIOUS LEVELS AND RATIOS UPON THE PRODUCTION OF RICKETS AND TETANY. J. Nutrit., 1936, 11: 275-291. 22 refs. A histological study was made of bone.

2942

Shohl, A. T., Fan, C. H. and Farber, S. EFFECT OF A.T. 10 (DIHYDROTACHYSTEROL) ON VARIOUS TYPES OF EXPERIMENTAL RICKETS IN RATS. Proc. Soc. Exp. Biol., N. Y., 1939, 42: 529-534. 4 refs. "The effect of A.T. 10 on prevention of rickets in rats differs according to the ricketogenic diet fed. Rickets caused by high-calcium-low-phosphorus diets was not prevented by a non-toxic amount of A.T. 10 which protected rats fed low-calcium-high-phosphorus diets."

2943

Shohl, A. T., Goldblatt, H. and Brown, H. B. THE PATHOLOGICAL EFFECTS UPON RATS OF EXCESS IRRADIATED ERGOSTEROL. J. Clin. Invest., 1930, 8: 505-531. 21 refs. Abstracted in: Biol. Abstr., Balt., 1931, 5: No. 27681; Chem. Abstr., 1930, 24: 4327. The bones were studied by roentgenograms and chemical analysis.

2944

Siegel, L., Allen, R. M., McGuire, G. and Falk, K. G. A STUDY OF NORMAL AND RACHITIC BONE STRUCTURE BY MICROPHOTOGRAPHIC METHODS. Am. J. Path., 1939, 15: 273-278. 4 pl. 6 refs. Abstracted in: Biol. Abstr., Balt., 1939, 13: No. 10877.

2945

Soeur, R. DE L'EFFET DE L'ERGOSTÉROL IRRADIÉ SUR L'OS. Arch. internat. méd. exp., Par., 1931, 6: 365-386. 37 refs. Abstracted in: Biol. Abstr., Balt., 1933, 7: No. 10859; Chem. Abstr., 1931, 25: 4588.

2946

Soeur, R. ÉTUDE EXPÉRIMENTALE DE L'OS DANS L'INTOXICATION PAR L'ERGOSTÉROL IRRADIÉ. Presse méd., 1931, 39: 1003-1005. Abstracted in: Biol. Abstr., Balt., 1932, 6: No. 18946.

2947

Spitzer, R. R., Maruyama, G., Michaud, L. and Phillips, P. H. THE ROLE OF VITAMIN D IN THE UTILIZATION OF PHYTIN PHOSPHORUS. J. Nutrit., 1948, 35: 185-193. 13 refs.

2948

Stolzberg, H. WOHER STAMMEN DIE BEI DER HEILUNG DER RACHITIS IN DAS SKELET EINGELAGERTEN KNOCHEN ERDEN? Mschr. Kinderh., 1931, 51: 205-219. 25 refs.

2949

Tempestini, O. NUOVE RICERCHE SUGLI EFFETTI SPERIMENTALI DELLA SOMMINISTRAZIONE DI UNA ALTA DOSE DI VITAMINA D_2 NEI TESSUTI DENTALI E PARADENTALI DEL RATTO. (RICERCHE SPERIMENTALI.) Riv. ital. stomat., 1952, 7: 373-410. 19 refs.

2950

Theiler, A. UNTERSUCHUNGEN ÜBER DEN BAU NORMALER UND DURCH KALZIUM- UND PHOSPHORARME NAHRUNG VERÄNDERTER RINDERKNOCHEN. Schweiz. Arch. Tierh., 1933, 75: 339-366. Abstracted in: Nutrit. Abstr., Aberdeen, 1933-34, 3: No. 5082.

2951

Theopold, W. and Hennig, W. ÜBER CITRONENSÄURE-CALCIUM-KOMPLEX-VERBINDUNGEN UND IHRE WIRKUNG AUF DIE TIERISCHE UND MENSCHLICHE RACHITIS. Mschr. Kinderh., 1950, 97: 462-468. 11 refs. Abstracted in: Chem. Abstr., 1950, 44: 4555[d].

2952

Titze, G. and Sander, E. UEBER DIE WIRKUNG DES VITAMIN D_2, D_3 UND AT. 10 AUF DIE KNOCHEN. Mschr. Kinderh., 1944, 94: 307-324. 10 refs.

2953

Tufano, A. CALCEMIA E RAPPORTO "CA-P" NELLE FRATTURE SPERIMENTALI SOTTO L'AZIONE DELLA VITAMINA D_2 IN DOSI "URTO". Policlinico, 1948, 55: 937-941. 12 refs. Abstracted in: Chem. Abstr., 1952, 46: 4076[b].

2954

Tulpule, P. G. and Patwardhan, V. N. MODE OF ACTION OF VITAMIN D. THE EFFECT OF VITAMIN D DEFICIENCY IN THE RAT ON ANAEROBIC GLYCOLYSIS AND PYRUVATE OXIDATION BY EPIPHYSEAL CARTILAGE. Biochem. J., Lond., 1954, 58: 61-65. 22 refs.

2955

Venar, Y. [A.] and Todd, T. W. THE EFFICACY OF VITAMIN D ADMINISTRATION IN AQUEOUS PREPARATION. J. Nutrit., 1934, 8: 553-568. 9 refs. Abstracted in: Chem. Abstr., 1935, 29: 493[9]; Biol. Abstr., Balt., 1936, 10: No. 20879. "The administration of aqueous preparations such as Aquasterol maintains or restores an approximate normal histological pattern in the growth area of bones despite severe pathological disturbances induced by a mineral-deficient diet in rats. The ash content of the bones is also increased by the aqueous preparations."

2956

Venar, Y. A. and Todd, T. W. EXPERIMENTS ON THE MAINTENANCE OF MINERAL DENSITY IN THE SKELETON. J. Laborat. Clin. M., 1936, 22: 221-230. 9 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1936-37, 6: No. 4794.

2957

Warkany, J. CONGENITAL MALFORMATIONS INDUCED BY MATERNAL NUTRITIONAL DEFICIENCY. J. Pediat., S. Louis, 1944, 25: 476-480. 19 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1945-46, 15: No. 202. In rats congenital skeletal deformities due to a maternal rachitogenic diet can be prevented by feeding the mother liver before fetal chondrogenesis begins. But if the diet still lacks vitamin D, skeletal deformities will be developed.

2958

Weinmann, J. P. and Schour, I. EXPERIMENTAL STUDIES IN CALCIFICATION. II. THE EFFECT OF A RACHITOGENIC DIET ON THE ALVEOLAR BONE OF THE WHITE RAT. Am. J. Path., 1945, 21: 833-855. 5 pl. 15 refs. Abstracted in: Biol. Abstr., Balt., 1945, 19: No. 21919; Nutrit. Abstr., Aberdeen, 1945-46, 15: No. 3430.

2959

Wellman, O. FÜTTERUNGSVERSUCHE ÜBER DIE BEDEUTUNG DES MINERALSTOFFWECHSELS, INSBESONDERE DER ERDALKALIEN UND PHOSPHORSÄURE. Biol. gen., Wien, 1932, 8: 387-396. Abstracted in: Chem. Abstr., 1932, 26: 1646.

2960

Wesson, L. G. and Boyle, P. E. UTILIZATION OF CALCIUM BY RATS ON HIGH PROTEIN-LOW CALCIUM AND HIGH CARBOHYDRATE-LOW CALCIUM DIETS. EFFECT OF SUPPLEMENTARY VITAMIN D. Arch. Path., Chic., 1943, 36: 237-242. 22 refs. Abstracted in: Nutrit. Abstr., Aberdeen, 1944-45, 14: No. 181.

VITAMIN INFLUENCE - VITAMIN D (Continued)

2961
Wiskott, A. PARADOX ERSCHEINENDES VERHALTEN NORMALER TIERKNOCHEN AUF VERFÜTTERUNG VON BESTRAHLTEM ERGOSTERIN. Zschr. Kinderh., 1930, 49: 79-89. 14 refs.

2962
Wollenberg, G. A. HEMMUNG DES LÄNGENWACHSTUMS LANGER RÖHRENKNOCHEN DURCH SCHÄDIGUNG DER WACHSTUMSFUGE. Zschr. orthop. Chir., 1933, 59: 272-286.

2963
Zacco, M. AZIONE DELLA VITAMINA D_2 SUL CONTENUTO DI CENERI DI CALCIO E DI FOSFORO DI ALCUNI ORGANI. Biochim. ter. sper., 1943, 30: 49-58. 43 refs. Abstracted in: Chem. Abstr., 1946, 40: 3159^7.

2964
Zetterström, R. THE EFFECT OF VITAMIN D ON THE MINERAL METABOLISM OF BONE. Acta paediat., Upps., 1951, 40: 568. An abstract.

2965
Zetterström, R. UNDERSÖKNINGAR ÖVER FOSFOROMSÄTTNINGEN HOS UNGA D-AVITAMINOTISKA RATTOR MED ANVÄNDANDE AV ISOTOPTEKNIK. Nord. med., 1948, 38: 1146. Abstracted in: Excerpta med., Sect. 5, 1949, 2: No. 1344.

See:

10	23	223	333	375
376	384	414	421	422
425	428	429	438	617
639	706	724	738	759
764	787	796	813	817
818	831	834	950	1188
1189	1194	1197	1207	1210
1212	1218	1225	1228	1234
1235	1236	1237	1246	1250
1261	1361	1366	1367	1439
1448	1479	1480	1485	1614
1687	1749	1770	1771	1777
1779	1791	1797	1800	1807
1824	1834	1838	1841	1842
1859	1864	1878	1949	1952
1953	1960	1963	1969	1976
1977	1978	1983	1984	1985
1988	1989	1990	1991	1993
1994	1997	2003	2007	2008
2012	2025	2031	2032	2087
2088	2114	2123	2285	2286
2382	2383	2384	2508	2512
2628	2692	2727	2728	2734
2740	2743	2756	2827	

VITAMIN INFLUENCE - VITAMIN E

2966
Bartolomucci, E. L'INFLUENZA DELLA VITAMINA E SUL PROCESSO DI GUARIGIONE DELLE FRATTURE. Policlinico, sez. chir., 1940, 47: 1-15. 25 refs.

2967
Thomas, B. H. and Cheng, D. W. CONGENITAL ABNORMALITIES ASSOCIATED WITH VITAMIN E MALNUTRITION. Proc. Iowa Acad. Sc., 1952, 59: 218-225. 45 refs. Abstracted in: Biol. Abstr., Balt., 1954, 28: No. 515. In this study of abnormalities in rat fetuses of vitamin E deficient mothers it was found that the abnormalities could be controlled by varying the dose and timing of vitamin E administration during pregnancy. It was also found that even in the externally normal fetus there was reduced ossification of the parietal and occipital bones and shortening of all long bones with markedly reduced ossification of the digital bones. The literature is reviewed.

See:

788 1430

VITAMIN INFLUENCE - VITAMIN G

see VITAMIN INFLUENCE - VITAMIN B COMPLEXES

VITAMIN INFLUENCE - VITAMIN K

2968
Neukomm, S., Péguiron, L., Lerch, P. and Richard, M. RÉPARTITION ET FIXATION DU SYNKAVIT HYDROSOLUBLE MARQUÉ PAR P^{32} DANS LES ORGANES DU RAT ADULTE. Arch. internat. pharm. dyn., Gand, 1953, 93: 373-384. 10 refs. P^{32}-tagged synkayvite was injected intramuscularly in rats and its deposition and metabolism studied in the different organs, including bone.

VITAMIN INFLUENCE - VITAMIN P AND PP

2969
Roasenda, F. and Camurati, C. MODIFICAZIONI DELLA CARTILAGINE DI ACCRESCIMENTO DELLE OSSA LUNGHE DEL RATTO ALBINO NELLE AVITAMINOSI ACUTE SPERIMENTALI B_2, B_5, B_6 e PP. Minerva ortop., Tor., 1952, 3: 166-169. 6 refs. Abstracted in: Excerpta med., Sect. 9, 1953, 7: No. 5771. "Vitamin B_2, B_5, B_6 and P-P factor deficiency causes a delay in the growth of epiphysial cartilages, but does not produce any change in the growth in length of bone." - Excerpta med.

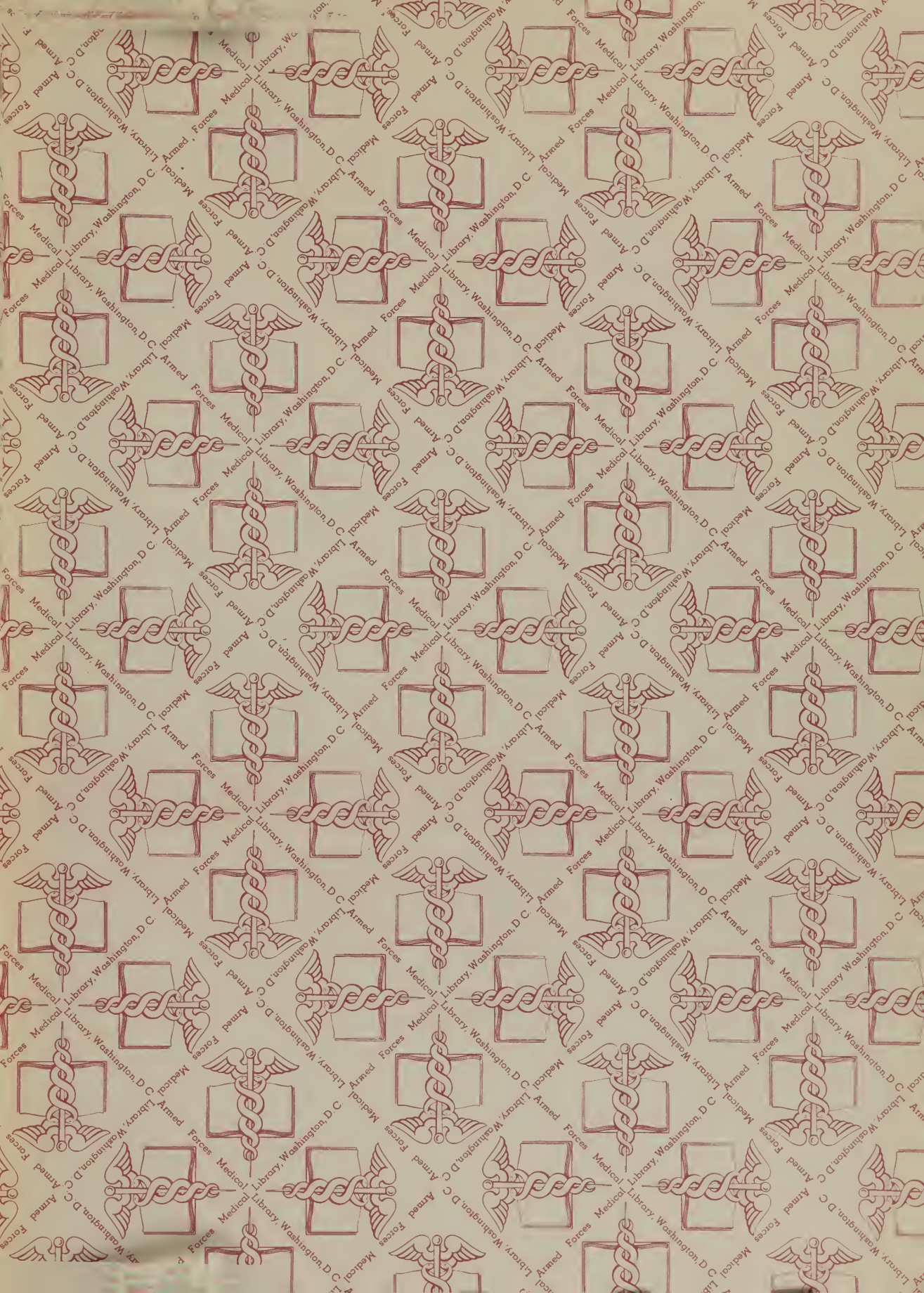
2970
Roasenda, F. and Camurati, C. MODIFICAZIONI DELLA CARTILAGINE DI INCROSTAZIONE DEL RATTO ALBINO IN ACCRESCIMENTO NELLA CARENZA SPERIMENTALE ACUTA DELLE VITAMINE B_2, B_5, B_6 E PP. Minerva ortop., Tor., 1952, 3: 277-278.

See:

2810

AUTHOR INDEX

☆ U. S. GOVERNMENT PRINTING OFFICE 1955 O— 340042


Medical Library, Washington, D.C. Armed Forces